Gender Responsive Standards

Guidance for ISO and IEC technical committees

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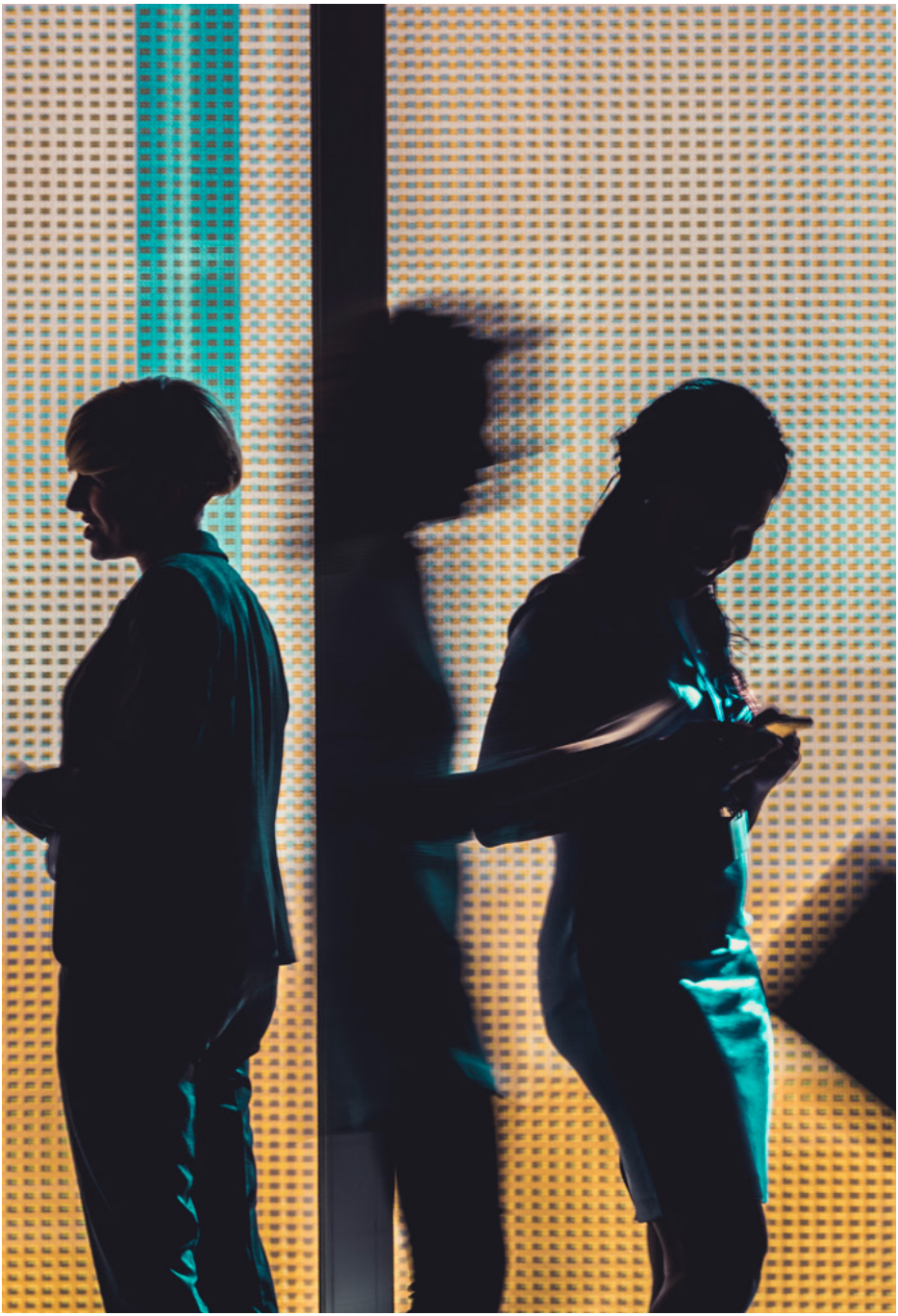

Gender Responsive Standards: Guidance for ISO and IEC technical committees

1. General

On 19 May 2019, ISO and IEC signed the UNECE Declaration on Gender Responsive Standards and Standards Development, pledging to make the standards they develop and the standards development process they use gender responsive. The UNECE Declaration recognizes that currently women are not as well-served by standards as men. The declaration encourages standards development organizations of all types to create gender responsive standards (GRS) and achieve gender balance in their standards development environments. The Declaration and its implementation aim to provide a practical framework for standards bodies and standards developers seeking to make the standards they develop, and the standards development process they follow, gender responsive.

In response to the UNECE Declaration, and as part of ISO and IEC's respective gender and diversity action plans, the Joint Strategic Advisory Group (JSAG) was established to develop guidance to help technical committees ensure they are developing GRS.

This guidance document aims to provide standards developers and all technical committee (TC, SC, PC, SyC) and working group (WG) participants with information and tools to aid them in ensuring the standards they are developing are gender responsive.

Given the breadth and depth of standardization, there is no singular solution to ensuring that a standard is gender responsive. As such, this guidance is intentionally broad and is meant to generate meaningful discussion within the committee to support standard developers as they work to develop GRS.

All committees are strongly encouraged to use this guidance and the accompanying assessment form.

2. What are gender responsive standards (GRS)?

Gender responsive standards are developed with consideration for gender implications in the content, requirements, and application of standards. When developing standards, developers need to identify relevant differences based on both sex and gender and determine how to account for the implications of those differences in the standard[1]. This will ensure that both women's and men's needs, experiences for the specified product, process, system or service are similar. There are physical / physiological[2] differences as well as social and cultural constructs defining roles and expectations for women and men that standards developers need to consider. Both the physical / physiological, social and cultural dimensions can have implications for standards that must be addressed.

In sum, a gender responsive standard is **a standard that reflects an understanding of physical differences and gender roles, and equally addresses the needs of women and men.**

3. What is your role as a standards developer in GRS?

All standard developers have an important role in shaping the direction, the scope and requirements of standards and guiding the development process. They are also instrumental in ensuring that standards are gender responsive. It is essential to ensure standards developers have ongoing discussions on gender considerations including how data can support these considerations. These discussions should begin at the first stage of the standards development process and continue through all other stages of development. Ultimately, all standard developers have an important role to play in the development of gender responsive standards which equally serve women and men.

1 Gender: is a continually evolving social construct codifying expected behaviours, social and cultural norms used to define and describe roles and individuals in a society, often reduced to concepts of femininity and masculinity (i.e. what it means to be a man and/or a woman) despite the diversity (spectrum) of genders. Gender varies from one society to another, and is based on cultural, economic and historical contexts. Sex: An individual's sex may be defined by one's assigned sex at birth and/or one's physical attributes which includes a combination of hormones, chromosomes, physiology and anatomy.

2 Physiological: relating to the way in which the bodies of living things work.

4. Identifying and assessing gender considerations

Standard developers should start from the assumption that sex and gender differences will have implications for their standardization activities and standards content. By starting with the assumption that there are sex and gender differences, this may enable a more robust examination to determine how gender impacts the standard(s) under development and what actions need to be taken to ensure the standard is effective for men and women.

Gender matters: Crash test dummies

"When in a car accident, women are 73 % more likely to be seriously injured or die than men. This is because crash test dummies are based on male's anthropometry. While overall safety of cars has improved, the improvement has been greater for men than women, because cars are not required to be tested with an equivalent female crash test dummy. Failure to account for women in the design, results in worse outcomes for women in the final product.[3]

It is essential to determine whether a standard functions, performs, and/or impacts women and men differently.

Some of the most common physical or physiological differences between men and women that would merit consideration by standards developers include, but are not limited to:

- Grip strength
- Physical dimensions / body size
- Hormones
- Skin thickness
- Body fat percentage
- Voice/ facial recognition
- Centre of gravity
- Pregnancy/breastfeeding
- Reactions to chemicals/pollutants
- Gender differences in ageing
- Metabolic rates

3 Forman, Jason, et al. "Automobile injury trends in the contemporary fleet: Belted occupants in frontal collisions." *Traffic injury prevention* 20.6 (2019): 607-612.

Gender matters: Radiation exposure

When exposed to the same dose of radiation, women are at a greater risk of developing or dying from cancer than men. Because of physiological differences, women may always be at a greater risk of developing cancer than men even if acceptable exposure levels are lowered. Consequently, when developing a standard it should be recognized that equal outcomes may not always be possible, however an examination of gender differences can allow for a consideration of what is acceptable for each gender.[4]

Beyond the physical/physiological characteristics, standards developers should also consider other differences between women and men due to socially constructed roles or expectations, such as:

- Power/authority dynamics in the home and public domains (i.e. who is most likely to be seen as or be the decision-maker; who is most likely to have or be seen to have control… etc.).
- Work environments (i.e. who is most likely to be occupying more junior roles; are there roles that are typically seen as women's or men's roles; gender inequalities in leadership, promotion, pay or recruitment; will the structure, or terms or conditions of work equally enable access to work for both men and women, etc.).
- Behavioral or cultural differences (i.e. dress codes, access to banking or financial services, education, freedom of movement, etc.).
- Social responsibilities (i.e. elder care, child care, etc.).

Socially constructed roles and expectations will vary within and between countries, regions, socio-economic groups, religious groups, etc. Standards developers should strive to identify and understand the implications of these types of gender differences or how a culture influences gender norms[5].

4 Narendran, Nadia, Lidia Luzhna, and Olga Kovalchuk. "Sex difference of radiation response in occupational and accidental exposure." Frontiers in genetics 10 (2019): 260

5 Deborah L. Best and Angelica R. Puzio, Gender and Culture. In: The Handbook of Culture and Psychology: Second Edition. Edited by David Matsumoto and Hyisung C. Hwang, Oxford University Press (2019), Oxford University Press.

As noted in the UNECE guidelines for developing GRS "to understand how gender and sex can impact a standard, we can consider the example of cookstoves. In 2018, ISO released new guidance on cookstoves. ISO collaborated with the Global Alliance for Clean Cookstoves to improve safety and efficiency[6]. Cookstoves fueled by solid fuels (i.e. coal, dung, etc.) and kerosene are a major contributor to indoor pollution. Indoor pollution is estimated to be responsible for 3.8 million premature deaths annually[7]. Women and children are disproportionately impacted by household pollution[8]. Due to gendered cultural norms women often spend more time on food preparation, increasing their exposure to harmful pollution. Moreover, research has shown that due to physiological differences pollution poses a greater health threat to women than men[9]. This gender difference is taken into account in the standards for field testing the impact and performance of cookstoves, where the standard user is directed to document the division of cooking tasks between women and men as part of the impact assessment[10]. In the case of cookstoves, sex and gender differences put women at greater risk"[11]. Gender differences are further accounted for in the guidelines for social impact assessment of clean cookstoves and clean cooking solutions, where extensive guidance is provided for the integration of gender analysis into cookstove and household energy projects.

To support standards developers in identifying and assessing gender considerations, please refer to the Gender Responsive Assessment Form. The results of the assessment will be one of the following:

- The committee has identified that there are sex and/or gender differences (that can range from limited to significant) the standard must address.
- The committee has determined that there are no relevant sex and/or gender differences at this time.
- The committee has determined that there is insufficient data at this time to incorporate gender considerations. However, this should be revisited as new data becomes available.

Once a committee has completed the assessment, the committee should take the necessary actions to modify the standards as indicated.

6 ISO, New Guidance in the Cookstoves Series, 2018
7 WHO, Household air pollution and health, 2018
8 WHO, Household air pollution and health, 2018
9 Clougherty J. E. (2010). A growing role for gender analysis in air pollution epidemiology. Environmental health perspectives, 118(2), 167–176. https://doi.org/10.1289/ehp.0900994
10 ISO 19869:2019 Clean cookstoves and clean cooking solutions — Field testing methods for cookstoves, 11.4.1
11 https://unece.org/sites/default/files/2022-01/Guidelines%20on%20developing%20gender%20responsive%20standards%20Advanced%20Copy%20v0_1%20220119.pdf

Figure 1 below outlines the process for assessing gender-responsiveness which is further detailed in the GRS Assessment Form.

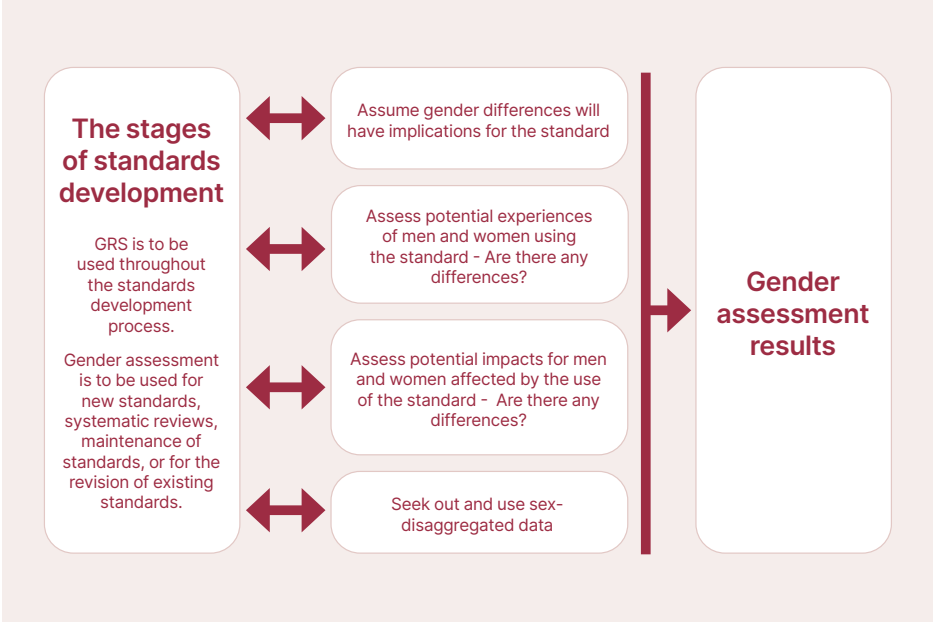

Figure 1: Process for Assessing Gender Responsiveness in Standards

5. The importance of sex-disaggregated data

What is Sex-Disaggregated Data? Sex-disaggregated is data that is collected and measured separately for women and men. This data allows for the measurement of differences between women and men on factors such as social, economic or physical aspects.

A vast amount of data, in the most general sense of the word, is used in the development of standards. The data can come in the form of knowledge, statistics, research, illustrations, to name a few. Data is critical in the standards development process. Sex-disaggregated data can promote more equal benefits from standardization for women and men. Standards developers need to be aware that data can contain gaps and biases. It is imperative for standards developers to understand the data they are using and its limitations.

Sex-disaggregated data is collected and tabulated separately for women and men. It allows for the measurement of differences between women and men on various dimensions (i.e. social, economic, physical, etc.) and is one of the requirements in obtaining gender statistics. However, gender statistics are more than data disaggregated by sex. Having data by sex does not guarantee, for example, that concepts, definitions, and methods used in data production are conceived to reflect gender roles, relations, and inequalities in society.

By considering the questions around data, standards developers can assess the data and develop strategies to critically analyze it to ensure its appropriate use and any potential limitations.

Sex-disaggregated data may need to be further disaggregated. Women and men are not homogenous groups. When considering sex, it is important to note whether other variables need to be considered. For example, while on average men are taller than women, the average height of women and men varies across ethnicities. Similarly, while on average smoking rates are higher for men than women, women of low socioeconomic status (SES) have higher smoking rates than men with high SES[12]. By ignoring other relevant factors sex-disaggregated data can be misleading.

12 See for example: https://www.cdc.gov/pcd/issues/2019/18_0553.htm

Gender matters: ISO/IEC 30122-2, *Information Technology – User interfaces – Voice commands*

This standard provides the technical criteria and test methods of voice commands in speech recognition engines used in information communications technology devices.

The standard specifies that demographic factors need to be considered to ensure the effectiveness of the technology, such as:

a) age;

b) gender;

c) native language;

d) culture;

e) physical condition (person with or without disability);

f) geographic location.

It does not specify the appropriate distribution. While this may be helpful to allow adaptation to different contexts, there is a risk that some groups may be under-represented. Given the widespread adoption of this technology, the consequences of not considering some groups may result in the standard being less effective for parts of the population. Notably, research has found that some speech recognition software is not as effective for women.[13]

13 Tatman, R. (2017, April). Gender and dialect bias in YouTube's automatic captions. In Proceedings of the First ACL Workshop on Ethics in Natural Language Processing (pp. 53-59).

6. What needs to be considered when using sex-disaggregated data?

General

It is important to note that it can be a challenge to find sex-disaggregated data. There are sources that will include population level data that is also sex-disaggregated (i.e., World Bank, OECD, WHO, national statistical agencies).

Population data is valuable since it gives a more complete picture of what is happening, however, when population data is not available or not specific enough for the needs of the standard being developed, then alternative sources of data/knowledge will need to be included in the process.

Safety standards are crucial in the field of electro heating as there are a number of potential hazards associated with the various heating techniques which could have an impact on the health of workers in the industries that use them. Electro heating can be employed to kill microorganisms in the food processing industry, for instance, using a variety of techniques which include microwave or conductive heating. IEC/TS 62996 and IEC/TS 62997 examined industrial electro heating and electromagnetic processing equipment. In developing these deliverables, the committee examined the interaction between external influences such as magnetic fields and currents in the body using computer simulation and other methods. By doing so they explored the interaction between humans (i.e. men and women) and technology when setting the requirements.

When using data, including gender data, it is important to understand the quality (validity and reliability) of the data[14]. This is impacted by how it was collected, measured, and presented. Data quality will have implications for the usability of the data. In using data to inform standards development the following should be considered:

14 For a more thorough review of data quality please see for example: DAMA-UK (2013). The six primary dimensions for data quality assessment. October 2013 or Black, A. & van Nederpelt, P. (2020). Dimensions of Data Quality (DDQ). DAMA NL Foundation.

Source

Refers to where the data comes from and who collected it. Key considerations are how and where the data was collected. If data came from an online survey, this will impact who was surveyed, as respondents would need to have internet access; there might be other characteristics that would distinguish the type of person that would respond to an online survey (i.e. age, education, income, etc.). Who collected the data? Are they considered a "neutral" party, or could they be seen as "partisan"? For example, during elections news organizations as well as political action parties collect data, and it is recognized that the data can be biased, depending on the source[15].

What to consider:

- ☐ How was the data collected?
- ☐ Who collected/processed the data?
- ☐ How was the data analyzed?

Processing/analysis validity and quality

Who processed and/or analyzed the data and how? Did they have a specific objective or agenda when processing and analyzing the data? Or was the data processed and analyzed by what would typically be viewed as an independent third party? Who processes and analyzes data can have implications not only on its quality and validity but also on whether or not accurate, unbiased conclusions or decisions can be made using the data.

Face validity

Does the data measure what it is purported to measure? In other words, is it obvious that what is measured is capturing what it is intended to measure? This is an important consideration because at times something can be measured in multiple ways; for example, when measuring the education level of a population, options include, but are not limited to, average years of schooling, proportion of the population with post-secondary education. At times a choice needs to be made about which indicator to use and that requires consideration of the research question and data availability.

15 For a more thorough review of data quality please see for example: DAMA-UK (2013). The six primary dimensions for data quality assessment. October 2013 or Black, A. & van Nederpelt, P. (2020). Dimensions of Data Quality (DDQ). DAMA NL Foundation.

Sample size

The number of data points collected. A key consideration when determining the appropriateness of the sample size is comparing it to the relevant population size. In general, the larger the total population the larger the sample size should be. In general, it is risky to draw conclusions based on small sample sizes since they are less likely to be representative of the population as a whole.

Representativeness of the sample

Related to sample size, the sample must also be representative of diversity within the population of study. If the reference population from which the sample is drawn has specific characteristics those should be represented in the sample. For example, if the population of interest varies by age, then it is important to ensure that that is reflected in the sample.

Gender matters: The importance of representation

As highlighted in the Standards Council of Canada's report "When one size does not protect all, women are not accounted for in research and development resulting in gender inequality in health, safety and well-being. For example, in the health area, research for medications and medical devices has historically been conducted with male animals, excluding female animals from preclinical research."

Also, pregnant women and those who are breast feeding are not considered ideal candidates for research. The impacts of low female, including female animals, participation in research has negative consequences – research has illustrated that medications and medical devices are not safe for women. One such study, in the US, found that 8 out of 10 drugs were withdrawn from the market because they were not as safe for women as they were for men.[16] [17] [18]

16 Parkouda, M. (2020). When one size does not protect all: Understanding why gender matters for standardization. Ottawa: Standards Council of Canada.

17 Mogil, J. S., & Chanda, M. L. (2005). The case for the inclusion of female subjects in basic science studies of pain. Pain, 117(1), 1-5.

18 Canadian Institute for Health Research. (2019). Are medications and medical devices more dangerous for women? Government of Canada.

Timeliness

It is important to know when the data was collected since this may impact usability. For example, relying on Body Mass Index (BMI) data from 50 years ago would be inappropriate since obesity rates have increased over the time frame. The data would not give a good picture of the current reality.

Data has limitations

Understanding limitations of the data is important to effectively use the data. Standards developers need to ensure that assumptions, data gaps and biases are identified to determine if and how the data should be used. For example, if the data was collected on a sample of young adults and if in fact the data is intended to be used to in a standard which impacts seniors as well as young adults, consideration would need to be given to if the data can be applied to different age groups. Any limitations in addressing differences because of age should be clearly disclosed along with any recommended mitigation strategy.

What to consider:

- ☐ Is the data being used current and relevant?
- ☐ Does the data represent the population that will be impacted by the standard?

7. What if sex-disaggregated data is not available?

Given the specificity and limited scope of individual standards, it is highly probable that sex-disaggregated data may not be available. When that is the case, standards developers can consider the following options:

- Collect sex-disaggregated data
- Use data that is not sex-disaggregated

If additional data collection is not an option, then standards developers can use existing data considering the limitations of the data. If data is only available for men, then consider how the data would likely differ for women (i.e. if it involves physical strength, or distance between objects that individuals need to reach, how would this differ for women?).

Addressing the data gap:

- ☐ If the available data is based entirely or primarily on men, users should consider how the data might be different if women were included.
- ☐ Acknowledge the limits of the data.
- ☐ Specify any assumptions made.

Where no sex-disaggregated data or no data about women exists, it is strongly recommended that committees/groups seek input from organizations or individuals with relevant knowledge or expertise or even lived experience related to the subject of standardization. This could be achieved by seeking representation from relevant women's organizations (i.e. professional bodies, trade associations, charities, etc., which represent and/or serve women), identifying academics, research organizations, etc., studying the subject with a specific focus on gender or by bringing in a general gender expert who could guide and support more informed analysis of the potential implications of gender differences.

When using data that is not sex-disaggregated it is essential to understand and acknowledge the limits of the data and specify any assumptions made so that the standard's users can make informed decisions on the applicability of the standard to women and men.

Where to seek additional data:

- **Seek support on analysis data by gender experts**
- **Seek representation from women's organizations**
- **Identify academic/research organizations**
- **Study the subject with a specific focus on gender**

8. Taking action – making standards gender responsive

The GRS guidance and assessment form are intended to help ISO and IEC technical communities to ensure that their standards are effective and protect the safety of men and women. Standard developers are encouraged to build their awareness of how gender can impact their standards. Examples of how to do this include but are not limited to the following suggestions:

- Start with the assumption that any new, amendment or revision to a standard will have gender implications.
- Take the ISO/IEC online training module
  - ISO Digital Learning Platform
  - Online Learning Platform (iec.ch)
- Engage with gender experts to seek advice and guidance.
- Share use cases with ISO and IEC secretariat so that others can learn from your experience.
- Promote gender responsive standards by sharing stories or examples using #genderresponsivestandards.

9. Conclusion

In 2019, the year that ISO and IEC signed the UNECE Gender Declaration, the World Economic Forum estimated it would take 99.5 years to close the gender gap[19]. By 2023, the time to achieve gender equality had risen to 131 years[20]. In their gender snapshot, the UN argued that the world is backsliding on gender equality[21]. Closing the gender gap will require systemic change and the dismantling of discriminatory social institutions. Gender responsive standards can play an important role in promoting gender equality. Standards are foundational, they shape the products, processes, and services we use daily. And yet, those products, processes and services often still don't work equally well for men and women. ISO and IEC have recognized that standards have an important role to play in changing that reality, in driving gender equality, and that gender responsive standards will be better for everyone. By taking the actions recommended in this guidance and using the gender assessment form, standards developers can play a part in fostering gender equality.

19 https://www.weforum.org/agenda/2019/12/gender-gap-report-gender-parity-how-to-speed-up-progress/
20 https://www.weforum.org/publications/global-gender-gap-report-2023/in-full/
21 https://www.unwomen.org/en/digital-library/publications/2023/09/progress-on-the-sustainable-development-goals-the-gender-snapshot-2023

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IEC Secretariat
3 rue de Varembé, PO Box 131
1211 Geneva 20, Switzerland

International Organization for Standardization

ISO Central Secretariat
Chemin de Blandonnet 8
1214 Geneva, Switzerland

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