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Steering Committee on Trade Capacity and Standards

**Working Party on Regulatory Cooperation
and Standardization Policies (WP.6)**

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Item 2 of the provisional agenda
Matters Arising

Report of third annual forum: Quality infrastructure for trade and the digital and green transformation

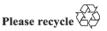## Submitted by the secretariat[*]

Summary

This series of hybrid conferences was organized during the third forum of the Working Party on Regulatory Cooperation and Standardization Policies (WP.6) and as a direct response to the seventieth Commission theme of "digital and green transformations for sustainable development in the Economic Commission for Europe (ECE) region" (see E/ECE/1504). This report provides a general overview of how this theme relates to quality infrastructure for trade as well as directions of future work of WP.6 on this topic.

Mandate

At its thirty-third session, WP.6 underlined the importance of digital and green transformations and that it planned to work on this theme (ECE/CTCS/WP.6/2023/14, paragraph 6).

Proposed decision

"Member States took note of the *Report of the third annual forum: Quality infrastructure for trade and the digital and green transformation* (ECE/CTCS/WP.6/2024/3) and thanked WP.6 and its secretariat for clarifying how quality infrastructure and the topics of WP.6 relate to the Commission theme of digital and green transformations for sustainable development in the ECE region. They requested the secretariat to raise these contributions to the attention of the Steering Committee on Trade Capacity and Standards and other parent bodies as appropriate. They encouraged WP.6 to continue to explore the impact of digital and green transformations on quality infrastructure and develop guidance on the topic."

[*] This document has not been edited by a professional editor.

I. Summary

1. The forum of subgroups of the Working Party on Regulatory Cooperation and Standardization Policies (WP.6) was created to enhance cross-fertilization between the members and the groups' topics. The series of conferences from 2–4 April 2024 during the third forum demonstrates how quality infrastructure for trade and the work of WP.6 can contribute to the theme of digital and green transformations. This forum was attended by a total of 172 participants; 81 were women.

2. The seventieth session of the Economic Commission for Europe (ECE) Commission of 2023 adopted the high-level theme of "digital and green transformations for sustainable development in the ECE region."[1] It is clear that we have been in an enhanced digital transformation for the past twenty years and more. The recent evolutions in automation, artificial intelligence (AI), machine learning, big data, but also cyber-attacks and cyber security are showing us just how much our world is evolving and how fast. Nearly nothing is escaping this digital transformation from our digital agendas, address books, dictionaries, cars to our kitchen appliances.

3. These half-day webinars each approached this theme from a different angle: market surveillance, risk management and gender and the discussions demonstrate the pertinence of WP.6 on these topics and the work we have already accomplished.

- Within market surveillance, the guidance of ECE *Recommendation M on the Use of Market Surveillance Infrastructure as a Complementary Means to Protect Users against Counterfeit Goods*[2] can benefit from increased information exchange between agencies. And the digitalization use cases could greatly benefit the larger quality infrastructure community and inspire similar usages.

- Risk management guidance such as the ECE *Recommendation R on Managing Risk in Regulatory Frameworks*[3] and the ECE *Recommendation S on Applying Predictive Risk management Tools for Targeted Market Surveillance*[4] can directly assist in considering the hazards involved in products with embedded AI and other digital technologies.

- The Team of Specialists on Gender-Responsive Standards (ToS GRS) demonstrate the importance of taking into consideration gender in conjunction with other transversal topics such as sustainability and digitalization. The *Guidelines on Developing Gender-Responsive Standards* (ECE/TRADE/472)[5] provides a good basis to build gender inclusive approaches to these other transversal topics.

II. Market surveillance and digital and green transformations[6]

4. The Chair of the WP.6 Advisory Group on Market Surveillance (MARS) underlined that advancements in shifting environmental priorities and its transparency has never been greater. Public authorities serve as guardians of this transparency, ensuring that market players adhere to regulations, uphold ethical standards and prioritize sustainability. He reminded that the green transformation is not merely a buzz word; it is an imperative for our collective future. Market surveillance must align with the global environmental goals, contributing to a more sustainable economy. Digitization offers unprecedented opportunities for effectiveness, streamline processes and respond swiftly to emerging risks. Collaboration between all stakeholders from both the public and private sectors is key to building trust and reaching our shared objectives. The role of public authorities with regard to the digital and

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[1] See: E/ECE/1504

[2] See: https://unece.org/DAM/trade/wp6/Recommendations/Recommendation_M_en.pdf

[3] See: https://unece.org/fileadmin/DAM/trade/wp6/Recommendations/Recommendation_R_en.pdf

[4] See: http://www.unece.org/fileadmin/DAM/trade/wp6/Recommendations/Rec_S_en.pdf

[5] See: https://unece.org/info/Trade/WP.6/pub/374695

[6] All presentations and bios of the presenters are available at: https://unece.org/trade/events/market-surveillance-and-green-digital-transformation-conference

green transformations are more critical than ever before for a prosperous and sustainable future.

A.   Reducing carbon footprint

5.   The representative of the International Accreditation Forum (IAF) reminded that it is supporting developing economies to establish accreditation infrastructures. IAF works directly on the International Organization for Standardization (ISO) 14065 standard on *General principles and requirements for bodies validating and verifying environmental information*[7] which builds confidence in emission reports and contributes to reducing carbon footprint. IAF has established a structured multilateral recognition arrangement (IAF MLA) to provide a harmonized, global approach for verification bodies and ensures that accreditation among signatories is accepted worldwide which also contributes to the reduction of carbon emissions. IAF does monitor the performance of its signatories and does spot checks to ensure that the accreditation bodies are not practicing green washing – in which case sanctions or suspension is imposed.

6.   The representative of COTECNA in Côte d'Ivoire presented their vision for an optimized and global market surveillance process. Traders are often wondering what regulations need to be applied, the governments are not sure of which standards should be adopted and consumers are not sure that the products they are receiving are conformant. The COTECNA system allows to create requests for certification on-line, the conformity assessment and test reports are all managed within the system and once certified, stickers with quick response (QR) codes can be affixed to the product. Any government official or consumer can scan the QR-code and verify the validity of the certification. The tool also integrates geo-localisation which allows to know exactly where the inspection is to take place and where the inspector is located. The inspector can upload pictures and write reports directly with their cell phone. Samples taken during inspection receive a QR code which follow the sample to the laboratory; all results are directly uploaded to the system. The system is further working on mutual recognition of the results of conformity assessment in other markets. The process allows to remove nearly all paper and reduce physical movements as well as ensure conform products on the market.

7.   The Executive Secretary of the Testing, Inspection and Certification (TIC) Council explained how it is reducing its carbon footprint. Industry 5.0 is about applying technologies to drive circular economy and increase sustainability. In relation to TIC, this can concern objects which it is testing/inspecting, such as the lighting of a building; that could use sensors and AI to capitalize on daylight and human presence reducing both the carbon footprint and reduce electricity costs. This can also concern the actual processes of testing, inspection and certification; currently, these processes rely rather heavily on paper and PDF versions of documents. But a laboratory management system, for example, could make real-time updates to data in a central system allowing engineers, project managers and other authorized parties to act on these results immediately. Integrated smart sensors can also provide a constant stream of data that enables around the clock inspection, safety detection and predictive maintenance, which will likely result in less on-site inspections. Simulations of certain products can also consume a considerable amount of electricity; smart laboratory testing can automatically reschedule such simulations when the load on the electricity grid is not as important, thus reducing the carbon footprint. We should, however, recognize that there is a gap between the capacity of companies to respond to new regulations and the rate of change/advancement of technologies. The pre-market role of TIC can help to ensure application of recent technologies and free up other quality infrastructure agencies to concentrate on other priorities.

B.   Digitalization of quality infrastructure processes

8.   The Chair of the International Laboratory Accreditation Cooperation (ILAC) presented on the use of digitalization in accreditation. For laboratories, according to

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[7]   See: https://www.iso.org/standard/74257.html

ISO/International Electrotechnical Commission (IEC) 17025 on *Testing and calibration laboratories,*[8] it is an option for laboratories to have access to validated software, to be able to issue reports electronically and to manage data through information management systems. Members further use remote assessment widely. A survey was conducted on digital authentication and tracking of certificates which underlined user satisfaction in relation to data interoperability, data accessing and data integrity. For ILAC secretariat, all work is now cloud based, an electronic voting system was put in place, virtual meetings have become the norm and shared folders are used for ILAC mark and registration of the mark. There are financial challenges on the capacity to implement digitalization, especially for smaller conformity assessment bodies; human capacities can also be a challenge.

9.   The representative of the United Nations Industrial Development Organization (UNIDO) reminded that digitalization and the fourth industrial revolution have changed everything about how we work, live, interact with each other and spend our work and leisure times. Smart quality infrastructure[9] and smart quality are integral parts of this revolution and vital to its success. She explained that UNIDO has a unique approach to quality infrastructure development which is holistic, and demand driven. The incorporation of new technologies bears great potential to enhance the quality infrastructure, while solid quality infrastructure services will be needed to embrace the fast-paced technological transformation. In all of this, the sustainability imperative must be taken on board if any of this is to benefit humanity, otherwise nothing will succeed.

10.   The representative of the Office of International Legal Metrology (OIML) outlined the basis of legal metrology. He reminded that digital calibration and electronic attestations done within metrology underpin the other processes done within quality infrastructure (such as standards, conformity assessment, market surveillance); measurements are needed in these other processes to make sure that the measuring instrument complies with what is planned in the legislation. The digitalization of the entire quality infrastructure also requires that these be based on communication technology standards to ensure that the information is reusable and interoperable throughout the process. There is a possibility of a digital traceability chain from individual instruments back to the international system of units. Digitalization of the instruments also helps to reduce potential corruption as all records are kept electronically, including who has verified the equipment and reduces any possibility of cash transactions. Coordination in this area is being done through a joint statement of intent (JSI).

11.   The representative from the Serbian market surveillance agency within the Ministry of Internal and Foreign Trade presented the results and achievements of a Serbia-European Union (EU) twinning project on enforcing intellectual property rights in Serbia and the use of digitalization on information technology tools for effective market surveillance. This project reflects the ECE *Recommendation M* (a revision of which is also presented to the thirty-fourth annual session; see ECE/CTCS/WP.6/2024/9). This project is conducted in cooperation with other competent law enforcement authorities, especially regarding dangerous, counterfeit products. The information exchange platform established for this purpose collects accurate statistical data from all relevant institutions. It can then analyse trends for the preparation of focused awareness campaigns and of targeted enforcement actions.

III.   Risk management and digital and green transformations[10]

12.   The Chair of the Group of Experts on Risk Management in Regulatory Systems stressed that digitalization is not just a trend, but it is a necessity for businesses striving to remain competitive and relevant. However, with the digital revolution comes a plethora of risks that must be carefully managed to ensure success and sustainability. Regulatory bodies

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[8]   See: https://www.iso.org/ISO-IEC-17025-testing-and-calibration-laboratories.html

[9]   See: https://hub.unido.org/sites/default/files/publications/ONLINE_EN_SMART_QI_PUBLICATION_0.pdf

[10] All presentations and bios of the presenters are available at: https://unece.org/trade/events/risk-management-and-green-digital-transformation-conference

are increasingly concerned with the safety of products with embedded technologies; despite the convenience and efficiency that such products may provide, they also pose risks such as data breaches, privacy violations and physical harm if not properly regulated. Regulatory bodies must adapt to the rapid pace of technological innovation and anticipating future risks.

13.   The Political Counsellor of the Mission of Israel to the United Nations in Geneva reminded that Israel aims to be at the forefront of technological advancement and strategically embrace AI. Israel recognizes the national strategic importance of AI and has developed a wholistic approach that spans government policies and research. It is not just about technology; it is about a future where technology can be harnessed for the benefit of society and where innovation is interwoven with responsible, ethical practices. Israel has invested a great deal of financial and human resources into AI. It has encouraged private initiatives on AI and is often referred as the "start-up nation", nurturing innovation and entrepreneurship. Israel strives to develop responsible AI solutions that are safe, transparent and equitable. AI can potentially be a crucial ally in mitigating risks; Israel has demonstrated how this can be used to tackle challenges in healthcare, cybersecurity, the environment, financial markets, automobile circulation. AI is a global story which can help to provide global solutions to the global challenges we face and create a more sustainable future.

A.   Risk management and digital products

14.   The director of the United Kingdom of Great Britain and Northern Ireland's National Consumer Federation (NCF) provided an overview of the scale of consumer markets and high-risk supply to consumers. This reveals the need for effective enforcement of regulation for safety, security and sustainability. Whether goods and services are digital or green they should not be on the market if they are not safe and secure too. Examining regulatory costs and the costs of poor enforcement leads to identifying potential regulatory and enforcement improvement with investment in compliance cost reduction and more enforcement resources. Regulation in Europe is greatly aided by the use of standards and software functionalities that can change with product lifecycle care and diligence. This lifecycle care and diligence perspective is the basis for consumer trustworthiness objectives in the European AI standards under development.

15.   The Secretary of the ECE Working Party on Automated/Autonomous and Connected Vehicles (GRVA)[11] presented an update on the regulatory activities related to the automotive sector, focusing on digitalization and environmental performance. He presented the two framework agreements having currently relevance for these topics. He explained that risk management was a key consideration in all activities under the World Forum for Harmonization of Vehicle Regulations (WP.29). He detailed two activities by the GRVA, one related to cyber security and the second related to automated driving system; he detailed using these two examples how risk management was considered at committee level and how it may be embedded in the technical provisions. He shared some observations on the way green digital transformation impacted the regulatory activities.

16.   The project leader of the WP.6 project on the regulatory compliance of products and services with embedded AI and other digital technologies provided a brief background on the project and the resulting common regulatory arrangement (CRA) developed based on the ECE *Recommendation L on the International Model for Transnational Regulatory Cooperation Based on Good Regulatory Practice.[12]* The CRA has identified regulatory objectives of product/service compliance based on overarching principles of good governance, ethics and transparency, what standards exist in the area to help support the testing of such products/services and how to test their conformity. The CRA was subsequently released for a 30-day public review and then presented to the WP.6 thirty-fourth session (see document ECE/CTCS/WP.6/2024/11); the project team plans to create a declaration that administrations could sign to demonstrate their adoption of the CRA.

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[11] See: https://unece.org/transport/vehicle-regulations/working-party-automatedautonomous-and-connected-vehicles-introduction

[12] See: https://unece.org/DAM/trade/wp6/Recommendations/Recommendation_L_en.pdf

B. Risk management and artificial intelligence

17. The Vice-Chair of the GRM presented on the evaluation of residual risk of AI systems. Many products with embedded technology are often a grey box in which it is not easy/possible to analyse or test the digital aspects of these. Regulations require AI systems to have an acceptable/tolerable level of residual risk – however the term residual is not defined. The ECE *Recommendation R* can easily be adopted for general products – the product is deemed safe when it complies with regulations, and this is normally based on a standard. However, it is more difficult to apply these principles to products with embedded AI when we start to ask questions like "how safe is safe enough", "what standards should be applied" or "what is the acceptable level of the residual risk". With a traditional product, the product characteristics are often straight forward and standards often exist. A product with embedded technologies such as AI, the functionality of the product is either unknown or partially unknown; it is impossible to look inside to check how it works; the system is stochastic, not deterministic. The only thing that can be done is to use a scenario-based approach for evaluating the residual risk of an AI system which can make an estimation of it. For conformity assessment, there will be a large number of scenarios to test; severity of failures will need to be tested in every scenario that the system can face. As presented in ECE *Recommendation S*, regulators will need to identify all possible hazards and risk events that could materialize during the functioning of an AI system, build a list of scenarios that a system can face, identify which hazards can occur in each scenario, and evaluate the potential hazards of each scenario. The GRM is well positioned to work on this topic.

18. The Junior Professional Officer of the International Telecommunication Union (ITU) presented the initiatives under ITU related to AI. The AI for Good initiative consists of an all-year online program and the annual in-person AI for Good Global Summit. The United Nations System Chief Executives Board for Coordination (CEB) and its High-Level Committee on Programmes (HLCP) created an Inter-Agency Working Group on AI (IAWG-AI) which focuses on delivering concrete outcomes on AI aimed at enhancing United Nations system-wide policy coherence and pragmatic coordination. The IAWG-AI is co-led by ITU and UNESCO. ITU also coordinates the United Nations Activities on AI annual report with over forty United Nations agencies; the 2022 report highlights nearly 300 AI projects run by the United Nations systems, covering all 17 Sustainable Development Goals (SDGs). The next AI report will be released in May 2024. ITU AI landscape survey gathers information from Member States about their AI-related policy and regulatory initiatives and how these efforts align with their ongoing digital transformation endeavours. ITU also hosts a series of focus groups related to AI which include AI for digital agriculture, AI for disaster management, AI for autonomous assisted driving, as well as global initiatives on AI for health, AI for road safety, AI and data commons.

19. The Head of Digitalization and AI of the German Association for Electrical, Electronic and Information Technologies (VDE) provided some insights into the European Union AI standards. The EU AI Act[13] defines a risk pyramid with unacceptable risk, high risk, transparency risk and minimal/no risk. This reflects the forty-year-old EU "New Legislative Framework"[14] and the essential requirements which are designed to ensure a high-level of protection of public interest, but do not specify the technical solution for doing so. When standards are referenced, they are usually developed by the stakeholder users (bottom-up); the European Commission has issued a standardization request in order to comply with the essential requirements described in the EU AI Act. Some of the challenges in AI standardisation within Europe to correspond to the requirements of the EU AI Act, it is in theory a consensus of all relevant stakeholders, but often driven only by those who have the time to draft the standards. International standards often do not include hard, testable standards, so these often must be added at the EU or national level.

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[13] See: https://www.europarl.europa.eu/topics/en/article/20230601STO93804/eu-ai-act-first-regulation-on-artificial-intelligence

[14] See: https://single-market-economy.ec.europa.eu/single-market/goods/new-legislative-framework_en

IV. Gender considerations for digital and green transformations[15]

20.   The Chair of the Team of Specialist on Gender-Responsive Standards (ToS-GRS) began the conference by highlighting the importance of gender-responsive standards for climate change and AI. She noted that both climate change and AI have the potential to exacerbate gender inequality, consequently, gender-responsive standards are essential to ensuring better outcomes for women and girls. With respect to climate change she noted that research has shown that women are more likely to be negatively impacted by climate change. When disasters strike, women are at greater risk and the risk continues even during the recovery phase. She also noted that women are more likely to take action to address climate change; however, the risk with this is that if addressing climate change is feminized, men will not engage to the same extent, thereby limiting progress. On the topic of AI, she noted the ongoing challenge of algorithmic bias that reflects societal biases. She also spoke about how technology can be misused to further harm women and girls. Finally, she noted the risk that women are not using AI to the same extent as men and that this may have longer term implications that will be detrimental to women's progress. She concluded by emphasizing the imperative of having gender-responsive standards for climate change and AI to safeguard women and girls and promote gender equality.

A. Gender considerations and climate change

21.   The Principal Technical Advisor of WorkSafe New Zealand underlined the changing risks that will occur as electricity replaces liquid and gaseous fuels and the importance of developing a strategy of gender resilience as the changes occur. He drew upon data from the New Zealand experience, but intentionally challenged the safety systems used internationally. He demonstrated measuring tolerance through the current safety system and the changes that are already occurring, and suggested where changes may need to be introduced as we move forward.

22.   The Secretary to the ECE Expert Group on Environmental Performance Reviews (EPRs) presented the experience of gender mainstreaming in activities under the ECE EPR Programme. Gender is incorporated in the EPR process, in reviews and in EPR recommendations. For example, beneficiary countries are encouraged to nominate EPR national coordinators considering gender parity and the review teams of international experts are formed taking into account gender parity or near parity. All the latest EPRs include a subsection on gender in the introduction part and reflect specific studies and activities on women and the environment, when such are available in the reviewed countries. Furthermore, EPRs include SDG targets 4.a (on building education facilities that are child, disability and gender sensitive and provide a safe, non-violent, inclusive and effective learning environment for all), 5.a (on reforms to give women equal rights to economic resources) and 6.2 (on achieving access to adequate and equitable sanitation and hygiene, paying special attention to the needs of women and girls) and recommendations related to gender and the environment, as relevant to the reviewed countries. The main challenge for a more intensive gender mainstreaming is the lack of gender disaggregated data on environmental issues in many beneficiary countries. In addition, the ECE Environment subprogramme has a wealth of experience in promoting and developing capacities on integration of gender aspects into environmental policies at country level.[16]

23.   The Head of the World Trade Organization (WTO) Trade and Gender Office presented the linkages between trade, gender and climate change which will be a WTO publication later this year. Women are often natural resource managers; environment degradation therefore impacts very negatively women's economic outlooks. That being said, women sometimes have a negative impact on the environment, for example with deforestation and wood for cooking; by making solar ovens and similar technological advances available to them, they are able to reduce their carbon footprint. Clean energy can

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[15] All presentations and bios of the presenters are available at: https://unece.org/trade/events/gender-consideration-green-and-digital-transformation-conference

[16] See: https://unece.org/environment-policy/environment-and-gender

foster women's trade and boost women's exports; for example, renewable energy can help increase productivity, allowing to generate more income which can be reinvested into the community. Green technologies can also help to comply with safety regulations; for example, new, green smokers can allow women to produce smoked fish in compliance with regulations instead of using traditional wood-burning smokers that may have had toxins in the wood. Natural disaster can also adversely affect women; for example, in Vanuatu, a cyclone devasted costal buildings, negatively impacting tourism, a sector dominated by women.

B. Gender considerations and digitalization and artificial intelligence

24. The Head of the IEC Academy stressed that there is momentum on the digital transformation but with various levels of engagement depending on the country and expert group. There are many technical committees and some systems committees working on AI-related topics and the ISO/IEC JTC1/SC42. IEC has also worked on standards for circular economy, including means to link to conformity assessment. IEC has been active on gender inclusion, targeting specifically training and engaging female experts.

25. The founder of the NoBiasAI? think tank reminded that AI is becoming increasingly central to our everyday lives. Although it has the potential to shed light on discrimination and disparities, it is far from being value-free. Embedded bias means that AI can reproduce prejudice and bias, and even amplify it. As the former Director for Gender Equality at UNESCO, the 2019 report "I'd blush if I could"[17] was produced, which found inadvertent gender bias in AI-powered virtual assistants and started a much-needed conversation between the public sector, academia, and technology companies. The explosion of generative AI in November 2022 came with a lot of promise, but closer inspection reveals exacerbated bias in the popular generative AI models. What's worse is that these generative AI models are released into the public realm without sufficient controls and guardrails. The 2020 report *Artificial Intelligence and Gender Equality* remains more relevant than before in the current context of increased efforts of government and international/regional bodies to articulate principles to regulate AI. All of the recommendations of this report have been incorporated into the UNESCO Recommendations on the Ethics of AI (2023)[18].

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[17] See: https://www.unesco.org/en/articles/id-blush-if-i-could-world-hit
[18] See: https://www.unesco.org/en/artificial-intelligence/recommendation-ethics