



International Organization of Legal Metrology

Organisation Internationale de Métrologie Légale

UNECE

**Steering Committee on Trade Capacity and Standards
Working Party on Regulatory Cooperation
and Standardization Policies (WP.6)**

**Panel discussion: Circular economy and
regulatory cooperation and standardization**

Metrology and the Circular Economy

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What is Legal Metrology?

- Legal metrology is the application of legal requirements to measurements and measuring instruments.
- The International Organisation of Legal Metrology (OIML) separates legal metrology into a number of key focus areas for society: The Environment, Health, Safety, and Trade.
- However, legal metrology covers every aspect of daily activities, from consumer protection to manufacturing and from national industry policy to internationally harmonised requirements.
- For more detailed information on the institutional aspects of legal metrology, refer to [OIML D 1:2020](#) *National metrology systems – Developing the institutional and legislative framework*.



What is the OIML?

- The OIML is an intergovernmental treaty organisation which:
 - develops model regulations, standards and related documents for use by legal metrology authorities and industry;
 - provides mutual recognition systems which reduce trade barriers and costs in a global market;
 - represents the interests of the legal metrology community within international organisations and forums concerned with metrology, standardisation, testing, certification, and accreditation;
 - promotes and facilitates the exchange of knowledge and competencies within the legal metrology community worldwide; and
 - cooperates with various organisations to raise awareness of the contribution that a sound legal metrology infrastructure can make to a modern economy.



What is the OIML?

- The OIML issues several categories of publications:
 - International [Recommendations](#), which are intended as model regulations for a number of categories of measuring instruments, and which OIML Member States are morally obliged to implement as far as possible;
 - International [Documents](#), which are informative and are intended for guidance purposes; and
 - Other publications such as [Vocabularies](#), [Guides](#), [Basic Publications](#) and [Expert Reports](#).



Society, business, standards, and metrology





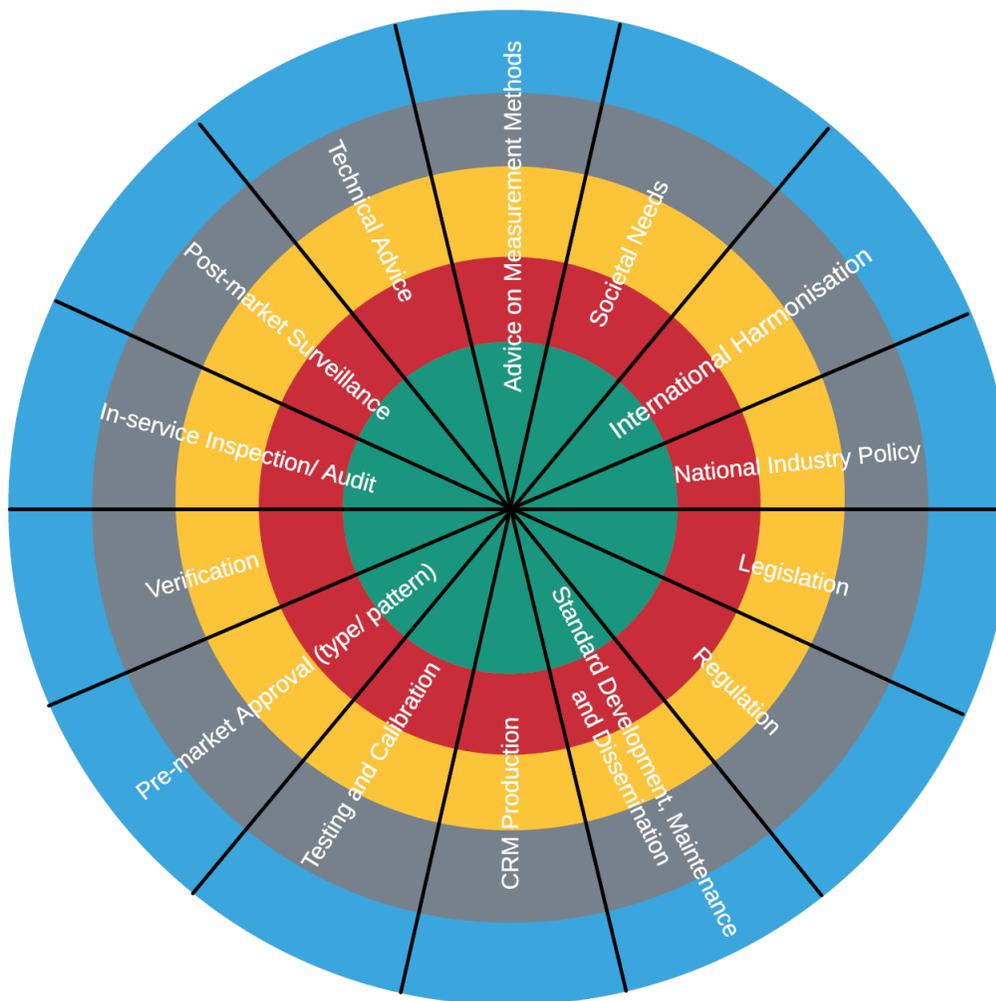
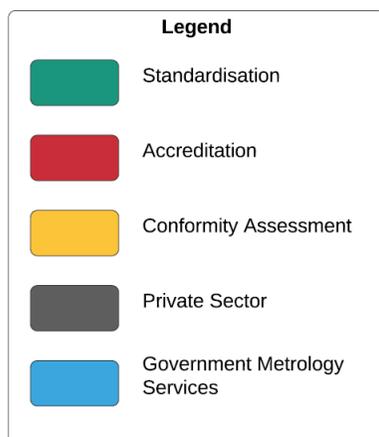
Legal metrology and the Circular Economy

- Metrology is involved as a science, a function, as well as a sector itself in all aspects of product lifecycles.
- Metrology assists with product traceability and therefore directly contributes to reuse, repair, remanufacture, and repurpose principles.
- Digital twin concept allows for greater ability for self-correction and trouble-shooting, reducing the need for diagnostic testing and repair.
- As an intergovernmental organisation, the OIML and its constituents contribute to delivering the SDGs.





Metrology's engagement: Circular Economy



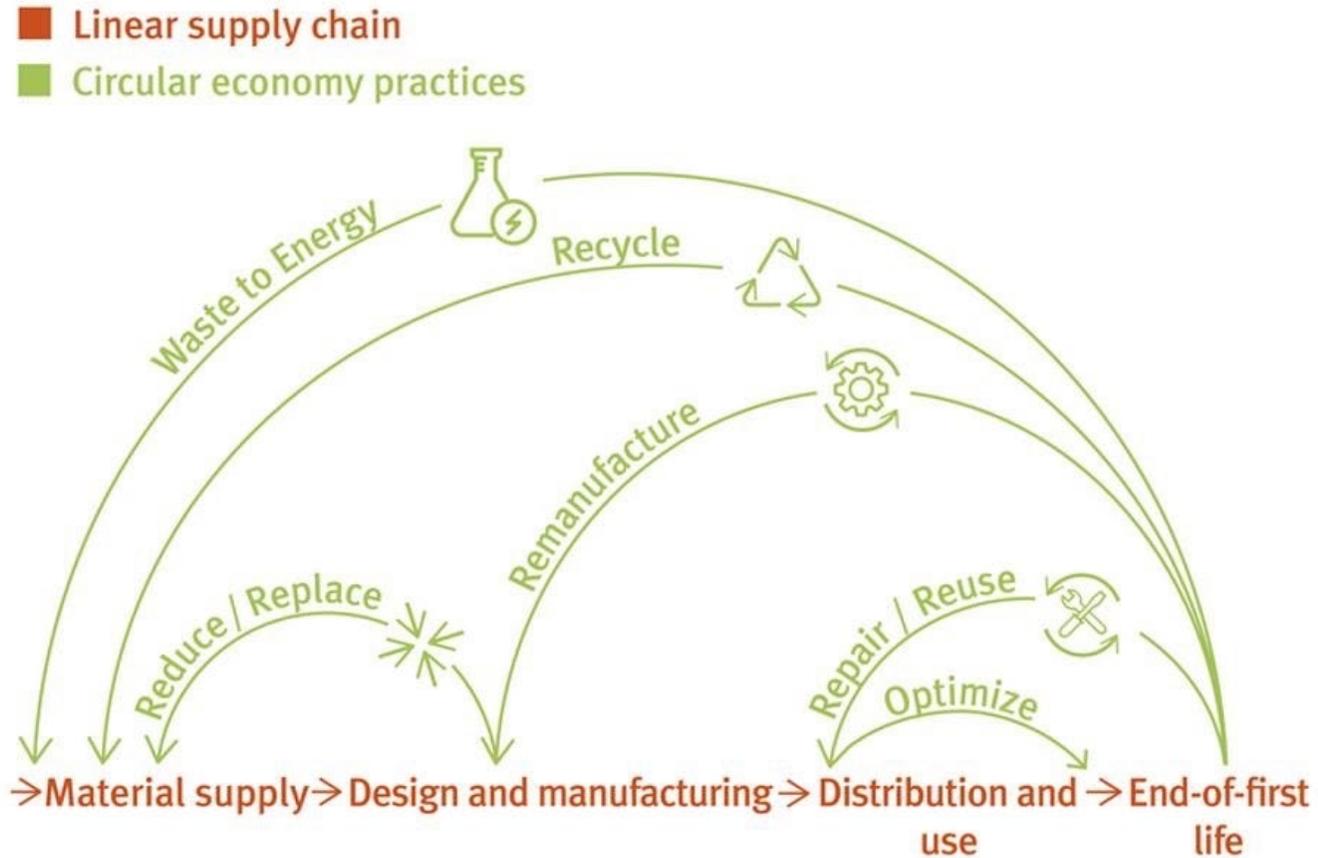


Metrology and Digital Twins

- Many DTs rely on sensors, sensors rely on measurement, good measurements rely on good, harmonised metrology standards.
- DTs have the potential to reduce the intensity of physical visits for calibration, verification and potentially regulatory compliance purposes therefore reducing the environmental impact of physical visits and transportation, working to offset carbon intensive activities and reducing maintenance costs while improving reliability.
- For example: soil moisture-level measuring systems have the potential to interact with and inform irrigation systems to assist with water resource distribution, efficient food production and the protection of physical ecological systems.



Rethinking design, manufacture and usage



Source:
United Nations Industrial
Development
Organization (UNIDO)



Regulatory cooperation and standardisation

- There are a number of emerging challenges and opportunities concerning metrology and regulatory cooperation, standardisation, harmonisation, and the Circular Economy.
- Beyond Industry 4.0: we are experiencing positive technological disturbance:
 - This will challenge and change existing normative structures and therefore there is a need for standards across various sectors, including AI.



Regulatory cooperation and standardisation

- Beyond Agriculture 4.0: accurate, remote and real-time measurements are critical:
 - This will lead to more efficient crop cultivation, yields, food supply chains, and production - and therefore food security.
- Intelligent transport systems and telematics also present opportunities for metrological advancements, standards, and traceable circularity.



Regulatory cooperation and standardisation

- An 'Internet of Rules' (IoR) will enable all entities to publish rules and regulations (e.g. legislation) online in a common format so they can be used universally to help MSMEs estimate trade costs when determining the feasibility of specific export markets as well as automate compliance.
- Regulatory cooperation, standardisation and the impact on the Circular Economy work well when there is a strong, open and transparent cooperation between government, industry and international organisations.



OIML Certification System (OIML-CS)



- The OIML-CS allows for the development and proliferation of technology, new measurement techniques, and instrumentation; it aims to harmonise the way approvals are achieved.
- The System avoids economies needing to establish often costly infrastructure to facilitate the approval of measuring instruments in their economy.
- The OIML-CS also contributes to Circular Economy principles because it reduces the need for multiple testing, facilities, and rejected samples.



Conclusion – the Circular Economy and metrology

- Truly collaborative industry policy design and development at a national or regional level is critical.
- Agreed industry policy, through collaborative design, will help to facilitate and set targets and expectations that government and the private sector can innovate towards.
- Maintaining the integrity of high metrological standards while responding to environmental concerns is the challenge before us.
- The digitalisation of metrology offers opportunities to reduce resource dependence and improve efficiency.
- Metrology is both an enabling technology and a sector in itself.



Thank you

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