

TC-IM WG Metrology for Digital Transformation

EURAMET activities related to EMN
Advanced Manufacturing
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General topics in digital transformation in metrology



- **Digital transformation in metrological services**
(digital certificates, remote services, automation, digital service infrastructures, eLearning)
- **Mathematics and confidence in data**
(artificial intelligence, digital twins and virtual measurements, validation of algorithms, uncertainty in complex systems)
- **Adopting Open Science for metrology**
(research data management, FAIR+X principles, open access)
- **Connectivity and data quality in distributed systems**
(data provenance, security, traceability, interfaces, communication technologies, sensor networks)

Digital Strategy: mission statement



- Foster uptake of digital tools, services and processes amongst its members, EMNs and research projects
- Oversee the digital transformation of metrology and industry and connect the individual developments to a harmonised approach
- Engage with external parties in relevant areas to establish metrological principles for data quality

Overall aim:

EURAMET to take the lead in the digital transformation of the European quality infrastructure

1448 Development of digital calibration certificates

The goal of this project is to foster the development of harmonised digital calibration certificates (DCC) at national metrology institutes and calibration laboratories. The focus is on DCCs with machine interpretable information about the calibration in such a way that it can be utilised for digital workflows in measurement science, calibration, conformity assessment and industry.

1449 Research data management and the European Open Science Cloud

The goal of this project is to foster the development of harmonised research data management (RDM) and metadata standards for metrological data and services. This is the requirement for establishing a joint metrological implementation network of the European Open Science Cloud (EOSC) principles of FAIR data and services. (Findable, Accessible, Interoperable, Reusable).

144x Measuring Sensor Networks (in process of being established)

The early goal of this project is to act as a share-point for knowledge on current developments in NMIs/DIs and to define relevant collaboration and joint needs.

R1 EMNs, JNPs and M4D engagement

- Regular meetings, initiate **joint SRA** by joint workshop,
- SCPs to boost EMNs in incorporating digital transformation in their R&D

R2 EMNs formulate their needs

- Based on R1 state **clear expectations by EMNs and JNPs** from M4D

R3 Working towards cross-sectional focus group

- With digital transformation experts from EMNs, JNPs and M4D
- To develop the cross-sectional SRA

R5.1 Develop strategic roadmap on DCC

- M4D strongly recommends that a CSA is carried out developing a joint research and development roadmap
- addresses the individual needs of EURAMET groups (TCs, EMNs and JNPs) and Members as well as needs expressed by stakeholders

R5.2 Establish collaboration with QI bodies

- M4D recommends that EURAMET extends existing collaborations with other bodies of the European quality infrastructure

R5.3 Establish collaboration with other RMOs

- M4D recommends that EURAMET establishes a continuous knowledge and information exchange with other RMOs in the area of DCC development

- EUARAMET seeking broader exchange on future key challenges in digital transformation that should be addressed in the scope of Digital Theme Calls (DIT) in metrology research.
- Workshop on 29th November 2021
 - Preparation including collection of topics from communities and stakeholder
 - Input from EMNs and their stakeholders on relevant digital themes, needs for support, planned PRTs, etc. very welcome!