



Bundesnetzagentur

AI Standardisation

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- AI standardisation worldwide
 - ITU
 - ISO/IEC
- AI standardisation in Europe
 - ETSI
 - CEN-CENELEC
- Potential work items
 - Testing of AI methods in communications
 - Trustworthiness



AI standardisation worldwide

- ITU, ISO, IEC



AI-relevant standardisation worldwide:

ITU-T:

- AI for **Health**
- Autonomous **Networks**
- **Natural Disaster** Management
- AI and IoT for **Digital Agriculture**
- Questions of
 - SG13 (**Future Networks**)
 - SG17 (**Security**)
 - SG20 (**IoT**)

ISO/IEC:

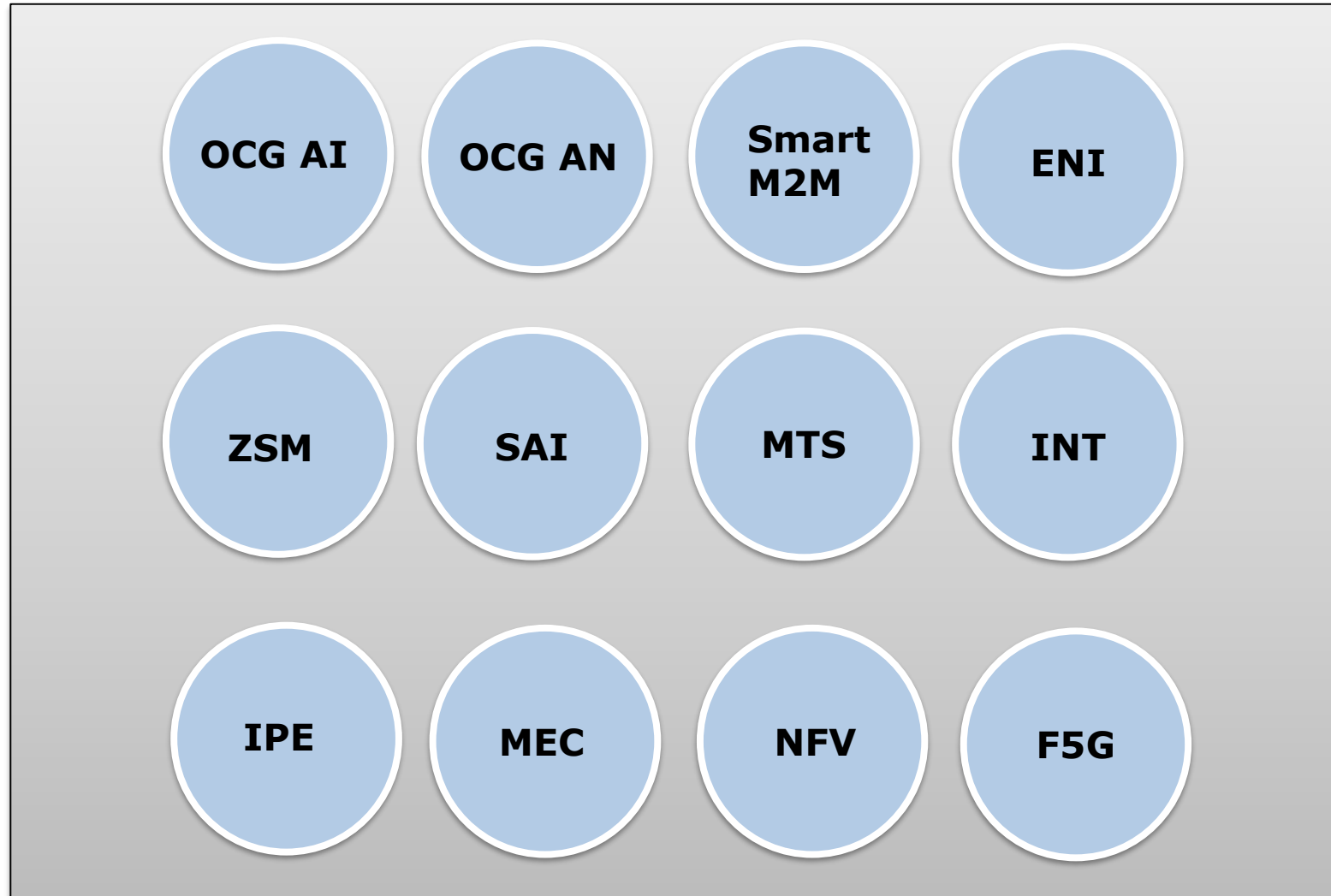
- JTC1 SC42 „Artificial Intelligence“
 - Testing of AI-based systems
 - AI enabled health informatics
 - Foundational standards
 - Trustworthiness
 - Use cases and applications
 - Computational approaches and computational characteristics of AI systems



AI standardisation in Europe

➤ ETSI

AI-relevant standardisation in Europe: ETSI





Europe: ETSI

ETSI:

- OCG **AI & AN**
 - Whitepaper on Autonomous Networks
 - Political Affairs
- TC **Smart Machine-to-Machine Communications**
 - SAREF
 - Digital Twin
- ISG **Experiential Network Intelligence**
 - Transformer Architecture for Policy Translation
 - Data Mechanisms
 - Categories of AI application to networks
 - System Architecture
 - Terminology
- ISG **Securing Artificial Intelligence**
 - Explicability and transparency of AI processing
 - Security and privacy aspects for using AI/ML techniques in telecom sector
 - AI computing platform security framework



Europe: ETSI

ETSI: Work with relevance for Autonomous Networks

- **Technical Committees (TCs):**
 - Methods for Testing and Specification (MTS)
 - Core Network and Interoperability Testing (INT)
- **Industry Specification Groups (ISGs):**
 - Experiential Networked Intelligence (ENI)
 - IPv6 Enhanced innovation (IPE)
 - Multi-access Edge Computing (MEC)
 - Network Functions Virtualization (NFV)
 - Zero touch network & Service Management (ZSM)
 - Fifth Generation Fixed Network (F5G)



AI standardisation in Europe:

- CEN-CENELEC: JTC1 „Artificial Intelligence“



Europe: CEN-CENELEC: JTC1 „Artificial Intelligence“

WG 2: Operational Aspects (LU, UK)

TR AI Conformity Assessment (LU)

TR AI Risks – Check List for AI Risks Management (IT)

EN Adoption of ISO/IEC 42001 AI Management System (IE)

Planned WIs for AI Standardisation Requests:

- Risk Management (1)
- Governance/Quality of data (2)
- Quality Management (9)
- Conformity Assessment (10)

WG 3: Engineering Aspects (UK, DK)

TR Tasks and Functionalities related to NLP (FR)

EN Data Governance and data quality for AI (IT)

Planned WIs for AI Standardisation Requests:

- Logging (3)
- Accuracy (6)
- Robustness (7)



Europe: CEN-CENELEC: JTC1 „Artificial Intelligence“

WG 4: Foundational & Societal Aspects (FR)

EN AI-Enhanced Nudging (FR)

EN Adoption of ISO/IEC 22989 AI **concepts and terminology**

EN Adoption of ISO/IEC 23053 **Framework** of AI Systems Using ML

EN AI trustworthiness characterization (FR)

TR Green/Sustainable AI (UK)

Planned WIs for AI Standardisation Requests:

- Transparency (4)
- Human Oversight (5)



Potential work items

- Testing of AI methods in communications
- Trustworthiness



Testing of AI methods in communications, e.g., ML:

Measure	Learning type	ML - Method	Criteria to be tested
<ul style="list-style-type: none"> Spectral efficiency Power control Path computation 	Reinforcement learning	<ul style="list-style-type: none"> Q - Learning SARSA Adaptive dynamic programming 	
<ul style="list-style-type: none"> Traffic prediction Flow classification Estimation of transmission quality 	Supervised learning	<ul style="list-style-type: none"> Convolutional neural networks Random - Forest Naive - Bayes 	

Focus Group ITU-T ML5G-I-R1-032-253, Input Document, Wojciech Samek et al.: Overview and Requirement Analysis of ML Methods in Communications.



Testing against system components to ensure trustworthiness:

<div style="display: flex; justify-content: space-between;"> / <div style="text-align: center;"> Testing levels </div> </div> Criteria	AI models	Data	Embedded system components such as user interfaces or communications equipment	System integration	Entire system
Safety and Security					
Explainability					
Transparency					
Dependability					
Precision					
Maintability					
Fairness					
Extent of autonomy and controllability by human					
Accountability					

<https://www.beuth.de/de/publikation/kuenstliche-intelligenz-managen-und-verstehen/359390396>
 Schmid et al.: **Künstliche Intelligenz managen und verstehen**, Beuth Verlag, 2023.



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Thank you for your attention!

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