



**Alliance for AI, IoT and Edge
Continuum Innovation**

Webinar • 08.07.2025

Presentation of Landscape Reports

Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Internet of Things Standards V.2

Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Edge Computing Standards V.2

Opening and Welcome

Antonio Kung, AIOTI WG Standardisation Chairman

Maria Giuffrida, Stand.ICT

Agenda

Agenda

14.30	Opening and Welcome (5 min) Antonio Kung, AIOTI WG Standardisation Chairman Maria Giuffrida, Stand.ICT	15.00	Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Edge Computing Standards V.2 Axel Rennoch, report contributor
14.35	Introduction to Stand.ICT and AIOTI Antonio Kung, AIOTI WG Standardisation Chairman Maria Giuffrida, Stand.ICT	15.15	Questions from the audience Moderated by Antonio Kung, AIOTI WG Standardisation Chairman
14.45	Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Internet of Things Standards V.2 Ines Robles, report contributor	15.30	Wrap up and end of Webinar Antonio Kung, AIOTI WG Standardisation Chairman

About AIOTI WG Standardisation

About WG Standardisation: Leadership, Vision, Highlights

Leadership:

Chair
Antonio Kung
Trialog



Vision:

To be recognized as a major contributor to the worldwide interoperability, security, privacy and safety of IoT and Edge Computing systems and applications, and particularly for the development of the market in Europe

Deliverables:

<https://aioti.eu/resources-standardisation/>

Highlights:

96 member organisations

193 participants

Main Achievements:

Deliverables	Collaborations	Events
▪ IoT Landscape Reports ▪ High priority gaps Reports ▪ IoT relation and impact on (beyond) 5G Reports ▪ High Level Architecture ▪ Ontology Landscape ▪ Computing Continuum Report	▪ Cooperation with SDOs/Alliances to foster co-creation and interworking (MoUs and Liaisons) ▪ SNS Partnership ▪ one6G ▪ Stand.ICT - EU OS ▪ EGDC ▪ HLF on European Standardisation ▪ ICT MSP	▪ AIOTI signature event 2023 ▪ SC41 Workshop ▪ Standardisation workshop on energy, mobility and buildings ▪ ETSI IoT Week ▪ Webinars to promote reports (2 in 2024) ▪ AIOTI Days 2024

2025 Priorities

Standardisation	Towards a computing continuum architecture	Published
	Stand.ICT Landscape IoT & Edge Computing	Published
	Stand.ICT Gaps IoT & Edge Computing	Initiated
	IoT Impact and relation to 5G/6G	Published
	EU funded projects landscape	Published
	High Level Architecture	Ongoing
	Computing Continuum	Ongoing
	Data to Ontology Mapping	Finalised
	Ontology Landscape	Published
	AI integration in IoT/Edge computing and computing continuum	

About Stand.ICT

StandICT.eu evolution

2018

2020

2023

2026

StandICT.eu

StandICT.eu2023

StandICT.eu2026

PILOT

- Establishment of the External Pool of Evaluators
- Management of the Open Calls and Fellowship Programme
- Beta version of the EUOS Repository (Standards Watch)



- Improved Grants platform and evaluation procedures with the introduction of the Quality Control step
- Current version of EUOS Repository with Discussion Groups
- Launch of Consolidated Technical Working Group (TWG) Landscape Reports
- Beta version of Training Academy



StandICT.eu 2026 builds on the success of the previous two editions, obtaining the recognition of the “go-to” project on ICT Standards in Europe.

- New Training Academy with dedicated events, such as on geopolitics of ICT standardisation
- Early warning system
- TWG Gaps reports
- «Societal» events on sensitive issues (e.g. Human Rights, women..)
- New focus on Open Source and SMEs
- Pilot Mentorship Programme
- Stakeholder consultations

StandICT.eu's main goal is to strengthen the global reach, leadership and influence of the European ICT Standardisation Ecosystem



Engagement of the Experts

FELLOWS' VOICES

100 + Fellowships carried within SDOs (ISO/IEC, ISO, IEEE, ITU, UEC, IETF, Cross-SDO)

StandICT.eu

About Open Calls Results EUOS Academy SMEs News & Events Get engaged

StandICT.eu Fellows

Home / StandICT.eu Fellows

Welcome to the StandICT.eu Fellows page, where you can discover the talented ICT standardisation experts funded through the StandICT.eu 2026 open calls. Dive into their profiles to explore their diverse expertise and contributions to advancing ICT standardisation activities. The StandICT.eu fellows play a crucial role in shaping the future of ICT standards at European and global levels, bringing their perspectives and insights to the forefront. Learn more about their valuable contributions to the standardisation landscape.

Search...

Open Call

- ☐ 1st Open Call
- ☐ 2nd Open Call
- ☐ 3rd Open Call
- ☒ 4th Open Call

Year of application

- ☐ 2024
- ☐ 2023

Topic

KEY ENABLERS

- ☐ 5G and Beyond (6G)
- ☐ Cloud and Edge Computing
- ☐ IoT Internet of Things
- ☐ Electronic identification and trust services (including e-signature)
- ☐ Artificial Intelligence
- ☐ Quantum Technologies

FOUNDATIONAL DRIVERS

- ☐ Data Economy
- ☐ Cybersecurity/Network and information security

SUSTAINABLE GROWTH

- ☐ Smart and Sustainable Cities
- ☐ ICT Environmental Impact
- ☐ Digitalisation of European Industry
- ☐ Robotics and autonomous systems
- ☐ Construction building information modelling
- ☐ Circular Economy
- ☐ Including Digital Product Passport

INNOVATION FOR THE DIGITAL SINGLE MARKET

- ☐ Blockchain and Distributed Ledger Technologies

Standards Development Organisation

- ☐ CEN/CENELEC
- ☐ ISO/IEC
- ☐ ISO
- ☐ ETSI
- ☐ CEN



Adam Smith
Spain



Amelie Gyrard
France



Anita Prinzie
Belgium



Anngreit Seyerlein-Klug
Germany
Role: convener



Antonio Kung
France
Role: convener



Belen Suarez
Spain
Role: convener



Caroline Thomas
Greece
Role: convener



Christian Grafenauer
Germany



Cornelis J.M. Lanting
Belgium
Role: convener



Daniel Waszkiewicz
Poland



David Artuñedo Guillén
Role: chair



Elzbieta Andrukiewicz
Poland

Anita Prinzie

Home / StandICT.eu Fellows / Anita Prinzie

4th Open Call

Proposal(s) title: Trustworthy AI and AI Risk Management expertise for EU AI Act harmonized standards

Proposal(s) topic: Impact on SMEs (4th Open Call)
I review and contribute to the prEN AI Trustworthiness Framework and prEN AI Risk Management accounting for the SME inclusiveness of the requirements. I want to enable SMEs to provide and/or deploy trustworthy AI systems while controlling AI risks taking into account their modest resources as compared to enterprises.

Impact on SMEs: Impact on society (4th Open Call)
The prEN AI Trustworthiness Framework Standard specifies trustworthiness requirements aligned with European culture and society. Whereas, the prEN AI System Risk Management standard enables to control risks not only on the individual and company level but also on the level of the society.



Full Name: Anita Prinzie
Title & Organisation Name: Omina Technologies
Country: Belgium
LinkedIn
Standards Development Organisation: CENELEC

Value of Research

The AI Act is a European regulation promoting the uptake of human-centric and trustworthy AI, while ensuring protection of health, safety, and fundamental rights. Companies can prove conformity with the AI Act by complying with the 10 harmonised standards drafted by CEN-CENELEC. My fellowship contributes to two harmonised standards supporting the AI Act.

Read more

CEN-CENELEC JTC 21 'Artificial Intelligence'



Samia Oukemini
Germany

Cybersecurity/Network and information security

3rd Open Call



Caroline Thomas
Greece

Blockchain and Distributed Ledger Technologies

1st Open Call
3rd Open Call



Josef Preishuber-Pflügl
Austria

IoT Internet of Things

3rd Open Call

“This standardisation project where I am contributing to will significantly impact European SMEs and societies by enhancing cybersecurity in critical infrastructures through the standardisation of ACaaS”

“This work sources use cases that can support societal impacts across international priorities such as Net Zero goals for climate change. They can support European values, democracy, and human rights based on European societal regulations”

“SMEs are major contributors in the RFID industry, contributing to in particular tags, readers and system integration. All of them require harmonised standards. Therefore, the work and content of EN 302 208 and TR 103 997 are very important to them”

Improving the expertise and skills, and knowledge in standardisation strategy of European ICT standardisation experts through group-specific training materials, workshops and modules

**Link to the Academy Archive
(developed under
StandICT.eu 2023)**

**Training Webinars incl. new series on the
geopolitics of ICT standardisation
focusing on Korea, India, China & USA**

**Newly
developed
modules**

**New Pilot
Mentorship
Programme**

Academy Archive

The Academy Archive is a rich source of ICT standardisation-related materials, featuring content and modules from earlier editions of the StandICT.eu Standards Academy. This archive collects documents capturing the evolution of ICT standards, offering insights, methods, and best practices developed over time. It's a practical resource for those interested in the progress and application of ICT standards.

[Explore more](#)

Showing 1 - 9 out of 29 training contents found

Topic

- ☐ Communications
- ☐ Consortia
- ☐ Curricula
- ☐ Education

RESOURCE

IEC Academy online learning platform

Online learning platform covering various (IEC - International Electrotechnical Commission) Standardisation related topics including:

TOPIC

SDO

Standards Process

LANGUAGE

English

FORMAT

Interactive Web Content, Training Course, Other PDF

LEVEL OF EXPERTISE

Entry level Intermediate



EUOS Standards Academy - Unlock your potential in Standardisation

Welcome to StandICT.eu's Standards Training Academy. Thanks to the provided materials, standardisation and learn through our comprehensive training modules. We will gradually and Advanced levels, catering to a wide range of professionals from startups to SMEs, large enterprises. The core modules have been developed under the guidance of the Standards Academy, and Ivona Mykovic, Chair of StandICT.eu Standards Education Group Academy.

Search by title
Level of expertise
Academy content

Module: Technological Sovereignty and ICT Standardisation

Author: Knut Blind
Created on: 07 February 2023

Advanced StandICT.eu Standards Leadership Webinar: Supporting SMEs participation in European and international standardisation

Author: Knut Blind, Gabriele Cossentino, Julian Bringer, Christine Arlt, Ivona Mykovic
Created on: 02 December 2023

Intermediate Module: IPRs and Standardisation

Author: Knut Blind
Created on: 02 July 2023



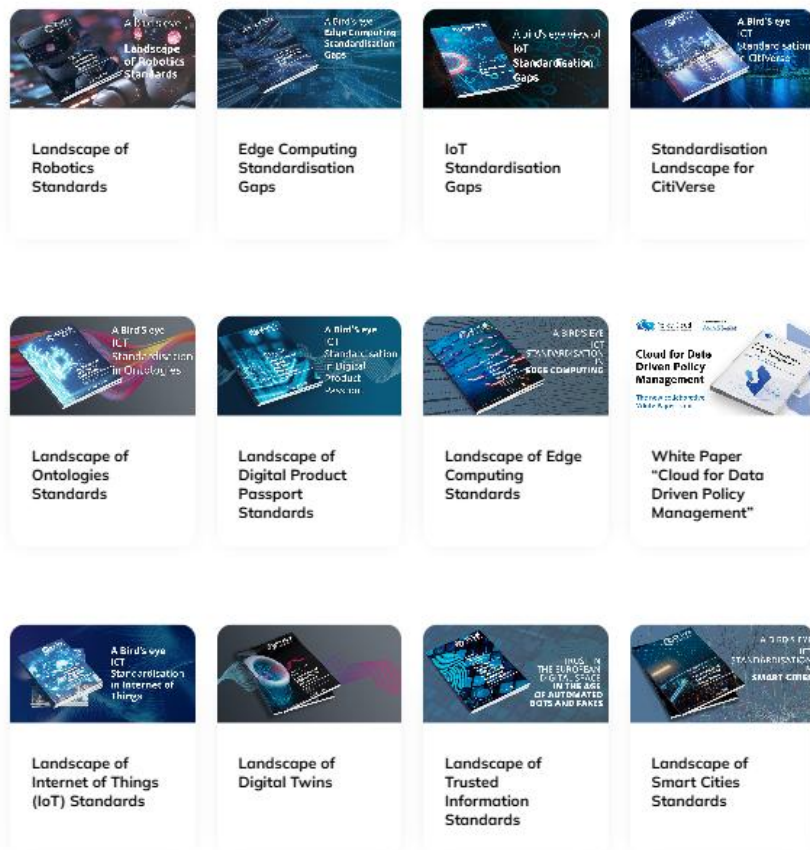
**Pairing of
mentors and
mentees**

**3 webinars
providing
guidance to SMEs
and new experts**

SDO Starter Kits

Success stories

StandICT.eu 2026 TWGs



8000+ views
7000+ downloads



...and more

3000+ mapped standards and WGs
35k+ views of the repository pages



Presentation of the Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Internet of Things Standards V.2

Ines Robles, Report Contributor

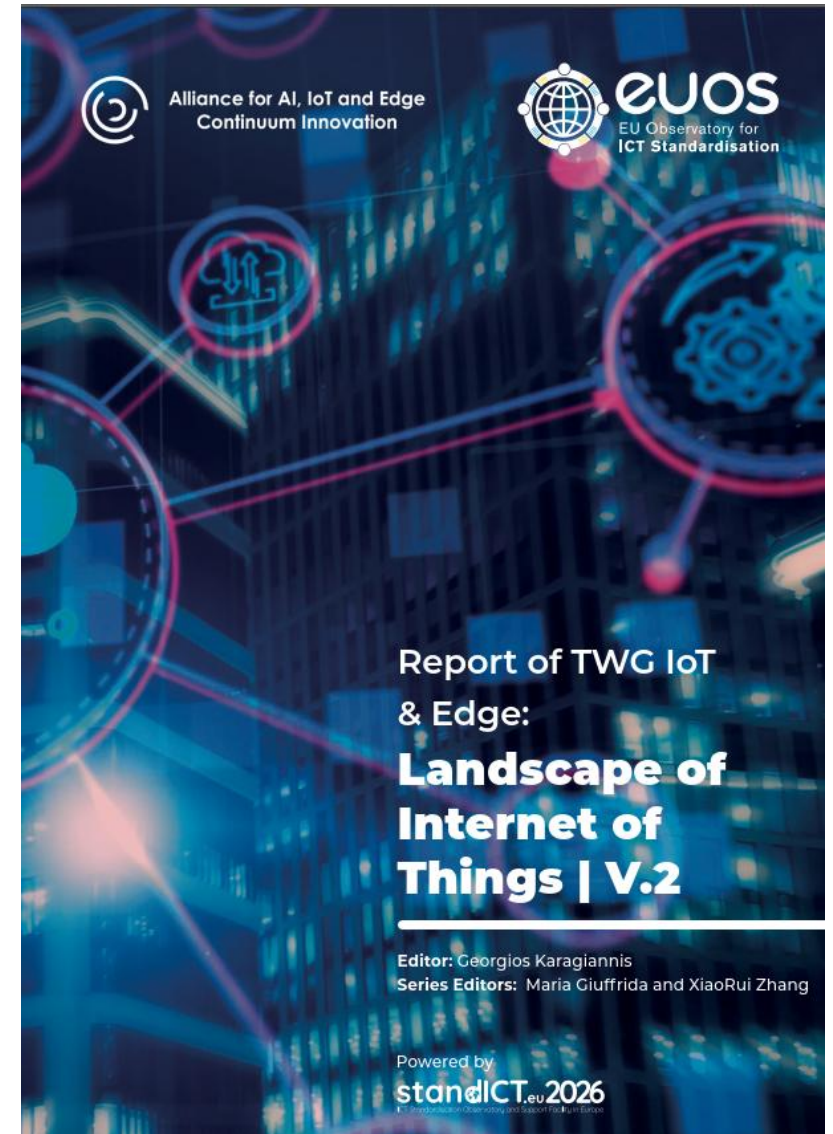
Landscape IoT Report: v2

- **Purpose:**

To provide a **comprehensive overview** of the **IoT standardisation landscape** supporting **interoperability mapping**, **cross-sector analysis**, and **strategic coordination** in the development and adoption of IoT technologies.

- **Published:** 6 June 2025.

- **Open Access:** <https://www.standict.eu/landscape-analysis-report/report-twg-iot-edge-landscape-internet-things-v2>

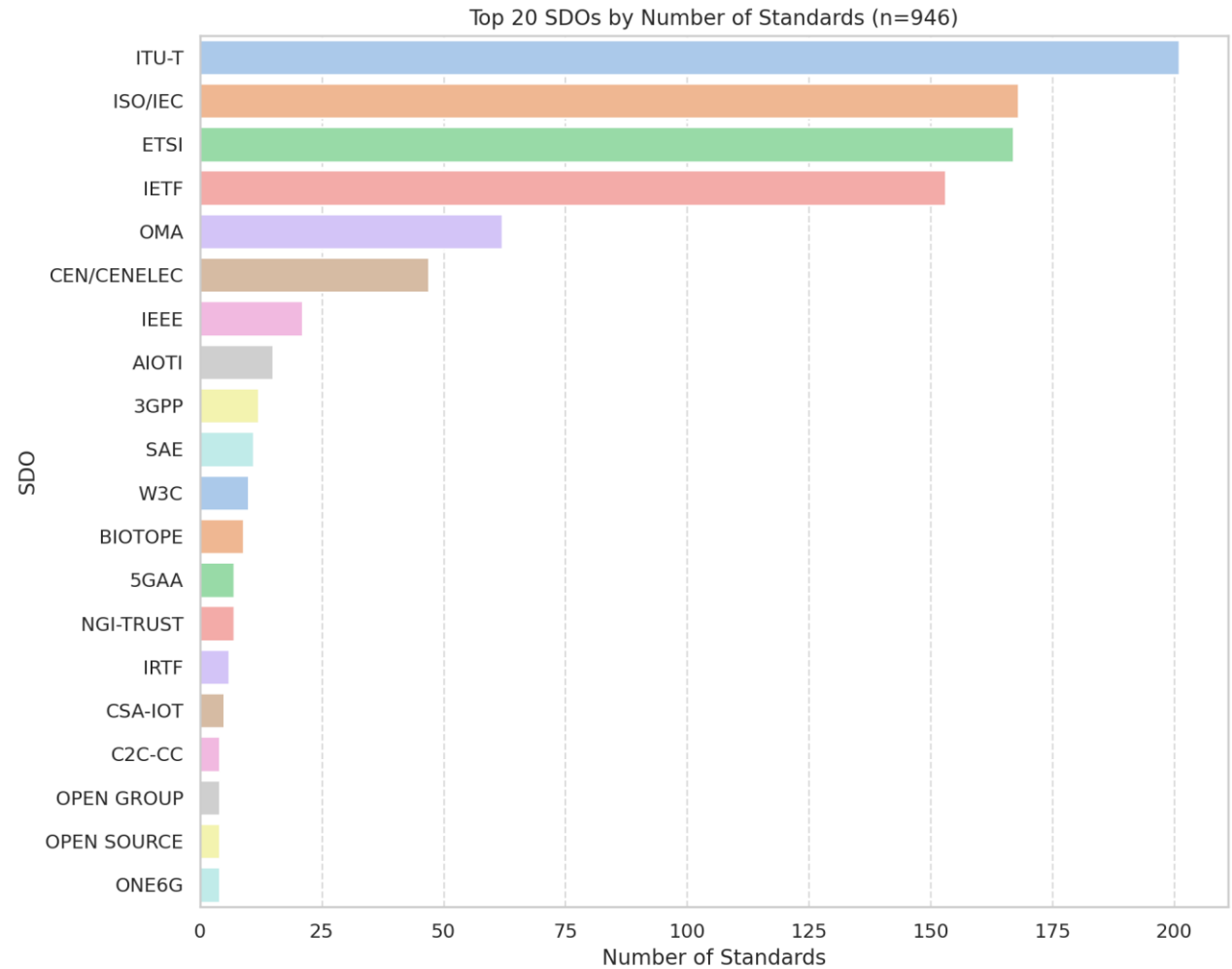


36 SDOs covered in the Report



SDO (Abbreviation)	SDO Full Name	SDO (Abbreviation)	SDO Full Name
3GPP	3rd Generation Partnership Project	IEEE	Institute of Electrical and Electronics Engineers
5G PPP	5G Infrastructure Public Private Partnership	IETF	Internet Engineering Task Force
5GAA	5G Automotive Association	IHE	Integrating the Healthcare Enterprise
AII	Alliance for Industrial Internet	IRTF	Internet Research Task Force
AIOTI	Alliance for AI, IoT and Edge Continuum Innovation	ISO	International Organization for Standardization
ASTM	ASTM International (formerly American Society for Testing and Materials)	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
C2C-CC	Car 2 Car Communication Consortium	NGI	Next Generation Internet
CEN	European Committee for Standardization	OASIS	Organization for the Advancement of Structured Information Standards
CENELEC	European Committee for Electrotechnical Standardization	OGC	Open Geospatial Consortium
CSA-IOT	Connectivity Standards Alliance	OMA	Open Mobile Alliance
DIN/DKE	German Institute for Standardization /Data & Knowledge Engineering	Open Group	The Open Group
ECSSO	European Cyber Security Organisation	Open Source	Such as RIOT OS (Real-time Internet of Things OS)
EEBUS	EEBUS Initiative e.V.	SAE	SAE International (Society of Automotive Engineers)
ENISA	European Union Agency for Cybersecurity	UN	United Nations
ETSI	European Telecommunications Standards Institute	W3C	World Wide Web Consortium
GS1	Global Standards One	WITSML	Wellsite Information Transfer Standard Markup Language
HL7 International	Health Level Seven International	one6G	open network evolution for 6G
IEC	International Electrotechnical Commission	oneM2M	one Machine to Machine

SDOs (Standards Developing Organisations) present in the IoT Landscape Report



IoT Standards Landscape: Sectors and Domains



■ Environment

Horizontals & Verticals

(Updated) ISO/IEC 30179 ED1 Internet of Things (IoT) - Overview and general requirements of IoT system for ecological environment monitoring

URL: https://www.iec.ch/dyn/www/f?p=103:38:204774363295796::FSP_ORG_ID,FSP_APEX_PAGE,FSP_PROJECT_ID:20486,23,105254

ABSTRACT: This document specifies the Internet of Things system for ecological environment monitoring in the following: — System infrastructure and system entities of the IoT system for ecological environment monitoring for natural entities such as air, water, soil, living creatures; and — The general requirements of the IoT system for ecological environment monitoring.

DOCUMENT TYPE: Standard_Specification

PUBLICATION DATE: 2023-01

(NEW) ITU-T Y.IoT-soil Requirements of IoT-based soil environmental protection and remediation

URL: https://www.itu.int/itu-t/workprog/wp_item.aspx?isn=19058

ABSTRACT: Soil is vitally important for both human well-being and the health of our planet. It serves as the foundation for maintaining ecological balance, ensuring food safety, promoting sustainable development, and protecting against health risks. By utilizing technologies such as the Internet of Things (IoT) and Artificial Intelligence (AI), it is possible to achieve integrated space-air-ground soil environmental monitoring and data-driven intelligent decision-making for soil protection and remediation strategies. This Recommendation provides overview, device requirements, network requirements, service support and application support requirements, and application requirements of IoT-based Soil Environmental Protection and Remediation (SEPR).

DOCUMENT TYPE: Standard_Specification

PUBLICATION DATE: Under development

Domain Category: refers to the **functional or thematic area** addressed by a standard, such as Connectivity, Architecture, or Data Management. These categories group standards by their **technical purpose or societal relevance**, enabling cross-sector comparison and analysis.

Sector: represents the primary **application context** or **industrial domain** in which IoT standards are used. This includes:

- Vertical sectors: domain-specific areas such as Health, Energy, or Mobility, focused on particular industries or societal needs.
- Horizontals and Verticals: a combined classification for standards that are broadly applicable across both horizontal (cross-cutting) and vertical (domain-specific) domains.

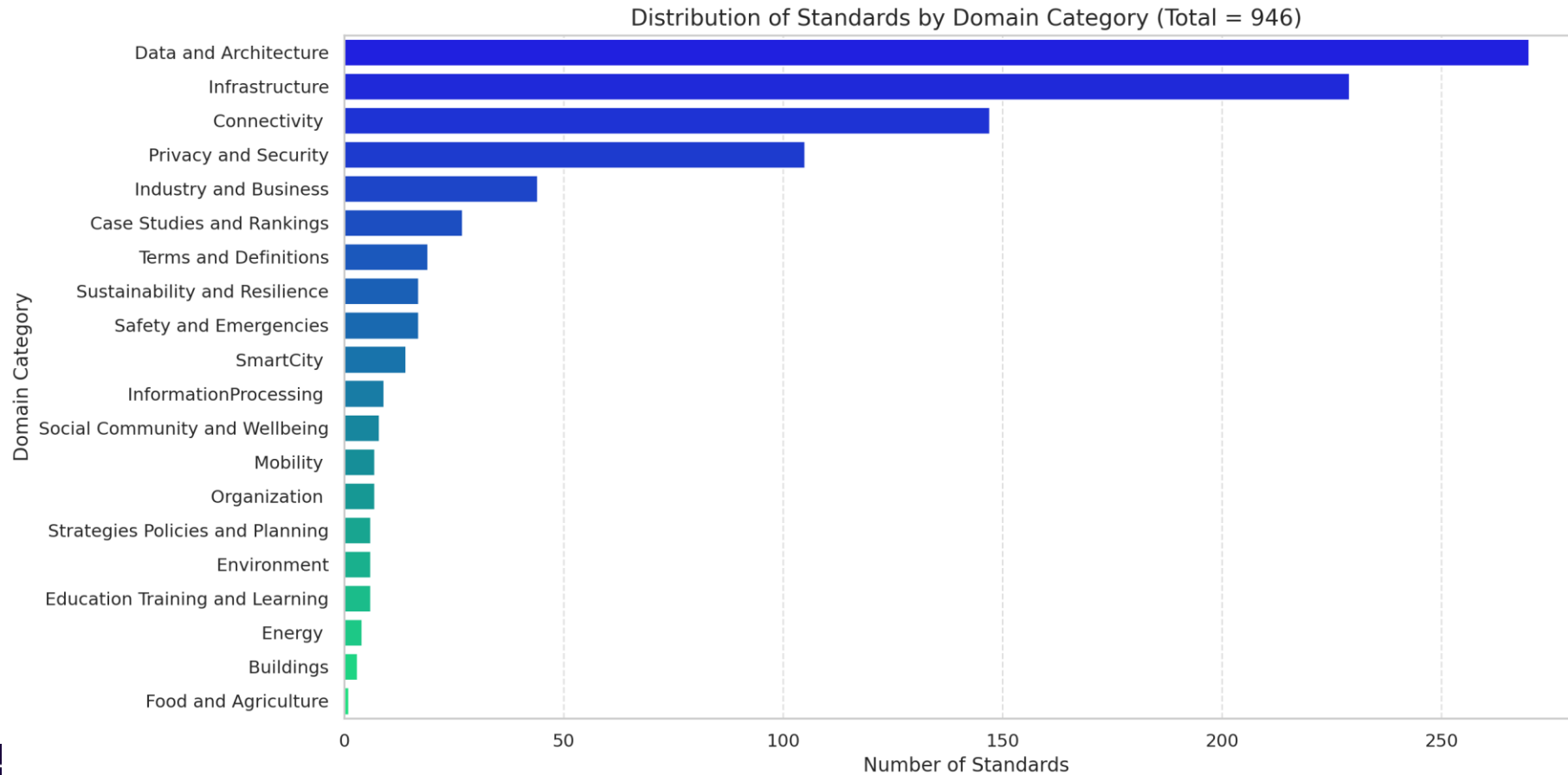
Status:

- Updated: The specification has received an update, such as a new version.
- New: This is a new specification incorporated in version 2 of the Landscape report; it was not present in version 1.

IoT standards by Domain Category



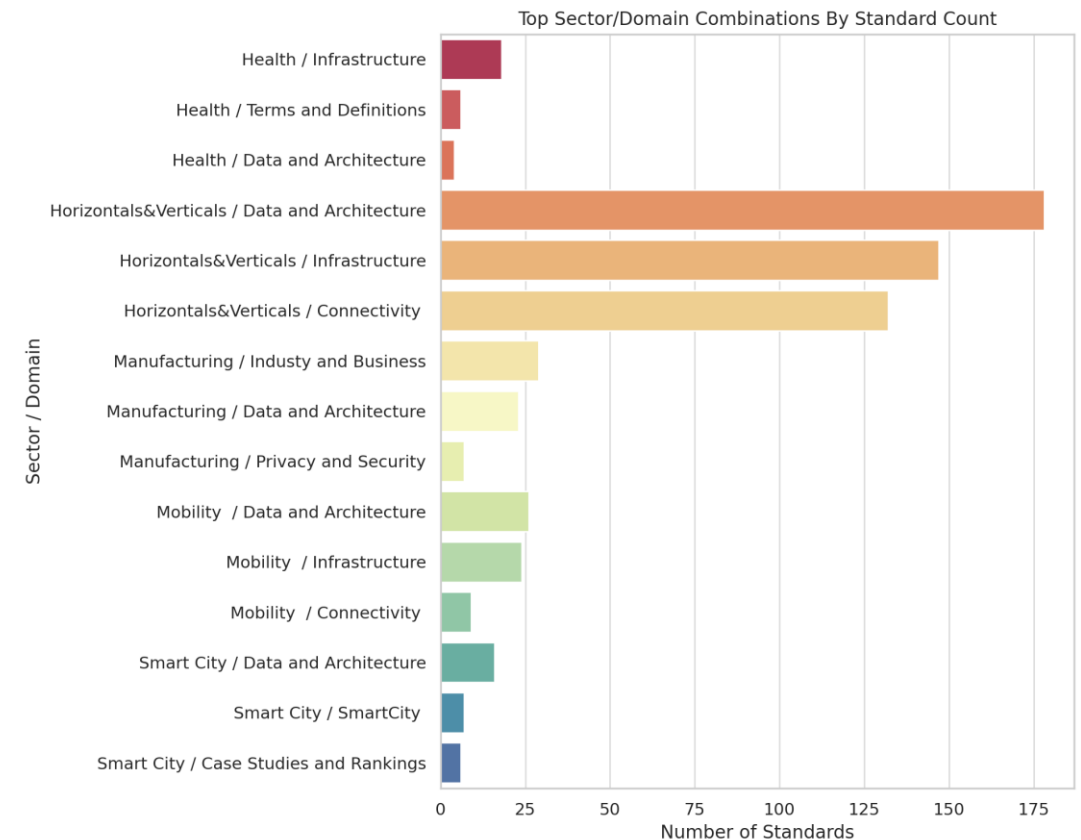
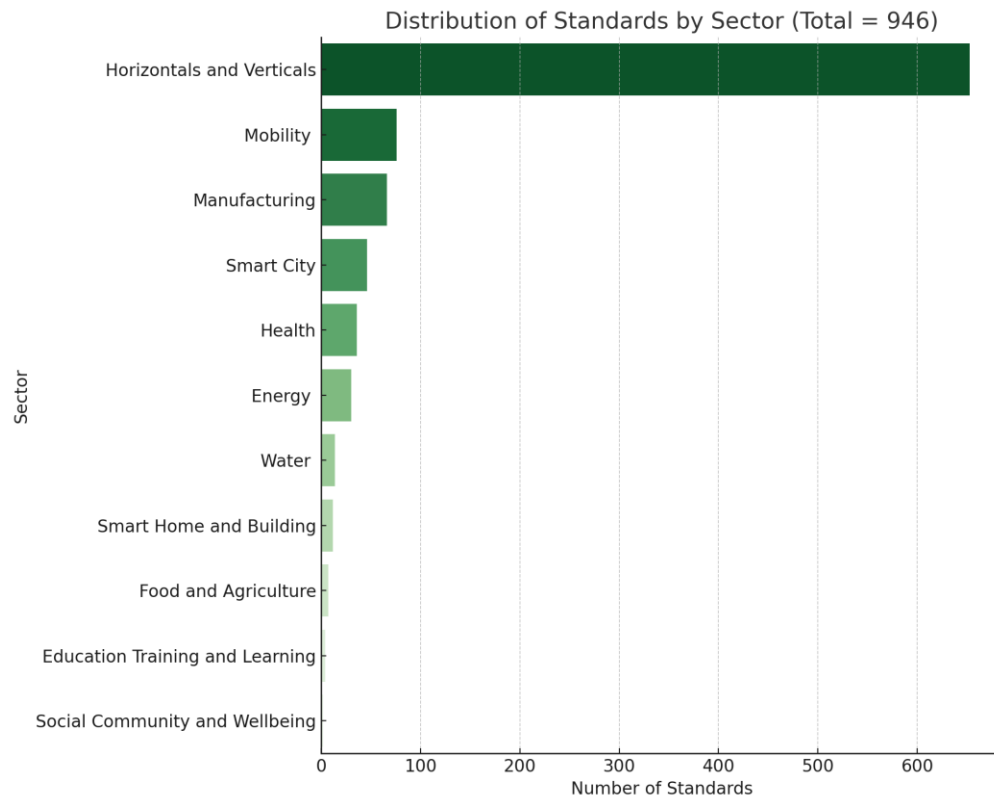
Domain Category: refers to the **functional or thematic area** addressed by a standard, such as Security & Privacy, Connectivity, Architecture, or Data Management. These categories group standards by their **technical purpose or societal relevance**, enabling cross-sector comparison and analysis.



IoT Standards by Sector

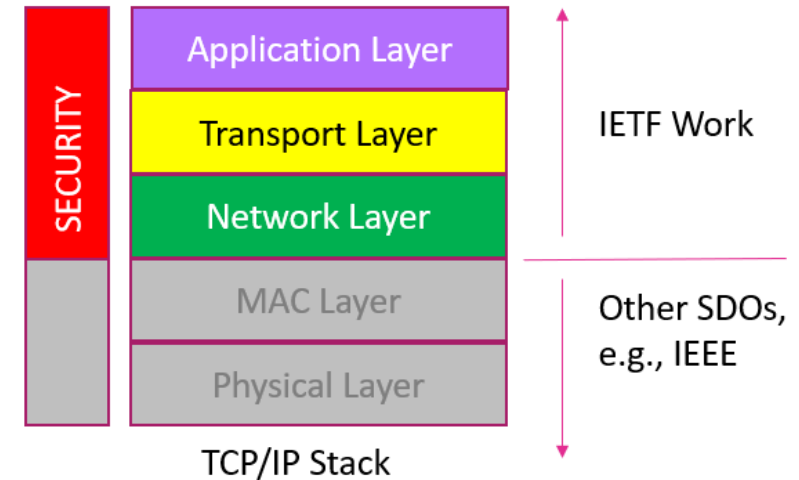


Sector: represents the primary **application contexts** or **industrial domains** in which IoT standards are used.



The IETF (Internet Engineering Task Force)

- The IETF is a Standards Development Organization (SDO) that develops Internet protocols such as HTTP, IP, and others.
- The overall goal of the IETF is to **make the Internet work better**.
- The Internet is built in layers, with each layer addressing a specific set of problems to enable communication between devices over the Internet.
- IETF Principles:
 - Open process
 - Technical competence
 - Volunteer Core
 - Protocol ownership
 - Rough consensus and running code



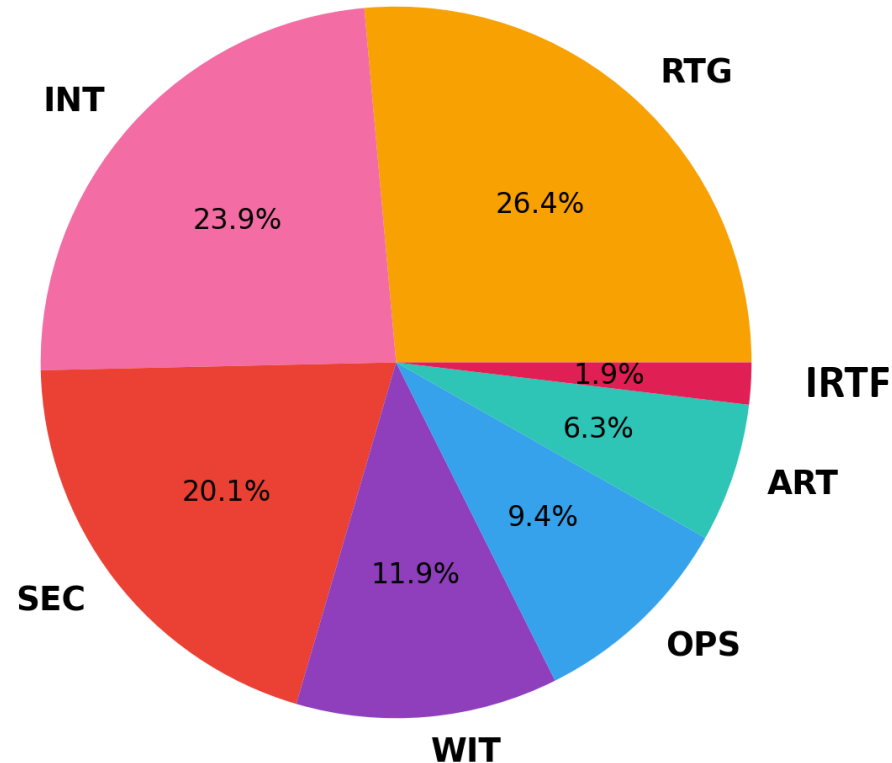
IETF scope within the TCP/IP Stack

<https://www.ietf.org/>

IETF: IoT WG/RG standards distribution in the IoT Landscape Report



Distribution of IETF/IRTF Standards by Area



Internet Area (INT):

Focuses on core IP protocols and mechanisms related to Internet addressing, DNS, IPv6, and mobility. It ensures a scalable and robust IP infrastructure.

Routing Area (RTG):

Develops and maintains routing protocols and architectures that direct data across networks, including dynamic in IPv6.

Operations and Management Area (OPS):

Covers protocols and tools for network configuration, monitoring, diagnostics, and operational management of network services.

Security Area (SEC):

Addresses security protocols, mechanisms, and practices for authentication, encryption, integrity, and secure communications on the Internet.

Applications and Real-Time Area (ART):

Covers protocols and standards for user applications, real-time communications, messaging, and data representation formats like HTTP or JSON.

Web and Internet Transport (WIT):

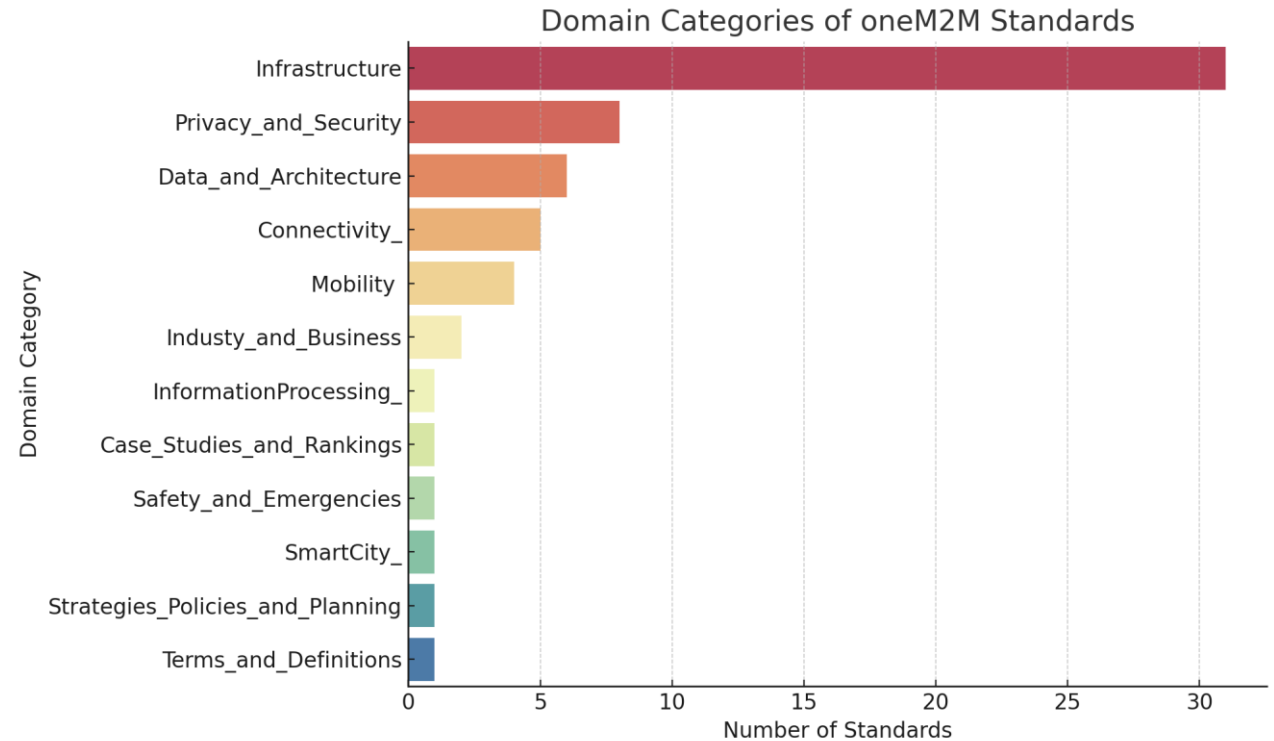
Focuses on the transport layer protocols and web technologies, including TCP, UDP, congestion control, and protocols that support web traffic.

IRTF (Internet Research Task Force):

Conducts long-term exploratory research related to Internet protocols, architecture, and technology. It supports forward-looking innovation rather than immediate standardisation.

oneM2M (one Machine to Machine) SDO

- **oneM2M was established in 2012** as a global partnership of eight leading SDOs such as ETSI.
- **Mission:** Develop global technical specifications for a **common M2M/IoT service layer**.
- **Scope:** Ensure efficient and interoperable **deployment of IoT and M2M systems** across sectors.
- **Architecture-neutral:** Designed to be embedded in a wide range of **hardware and software platforms**.
- **Ecosystem engagement:** Actively involves stakeholders from domains such as:
 - Smart cities, transportation, healthcare, utilities
 - Industrial automation, smart homes, public safety, agriculture, and retail

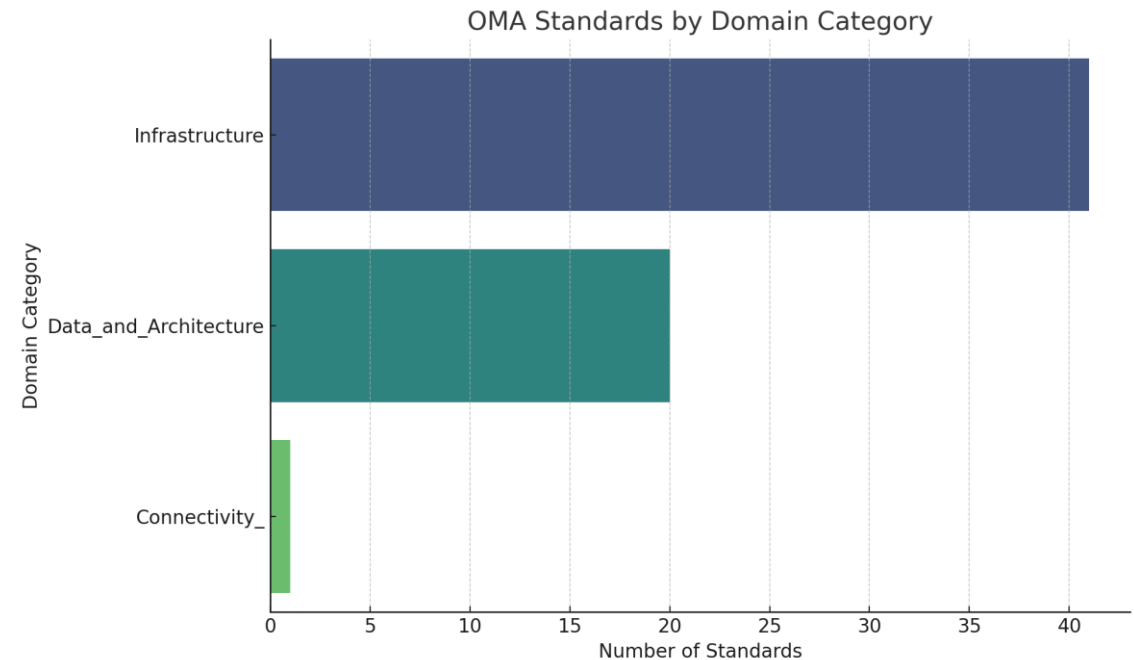


oneM2M standards distribution in the IoT Landscape Report

Open Mobile Alliance (OMA)



- **OMA** is a SDO formed in 2002, that focused on enabling interoperable mobile services across networks and devices.
- **Mission:** To deliver open, global specifications for creating interoperable services that work across different mobile networks and devices.
- **IoT protocols** (Lightweight M2M – LwM2M)
 - OMA LwM2M protocol is a lightweight, efficient protocol designed for remote device management and telemetry in constrained environments.
 - Optimized for low-power IoT devices with limited memory and processing capability.
 - Uses CoAP (Constrained Application Protocol) over UDP for efficient communication.
 - Widely used in smart metering, asset tracking, smart city infrastructure, environmental monitoring, and industrial automation.
 - Supports features such as firmware updates over-the-air (FOTA), security, and device diagnostics.



OMA distribution in the IoT Landscape Report

Presentation of the Joint Stand.ICT/AIOTI Report of TWG IoT & Edge: Landscape of Edge Computing Standards V.2

Axel Rennoch, Report Contributor

Landscape Edge Report: v2

- **Purpose:**

To capture the landscape of **edge computing activities** and edge computing **documents/specifications** published and/or under publication **by SDOs, Alliances and OSS Initiatives**.

- **Published:** 4 February 2025.

- **Open Access:** <https://www.standict.eu/landscape-analysis-report/landscape-edge-computing-standards>



Initiatives covered in the Report

SDOs

- ISO/IEC
- ETSI
- ITU-T
- IEEE
- 3GPP, 5GPP
- IETF, IRTF
- CEN/CENELEC

Alliances

- AIOTI
- ECC
- EECC
- W3C
- IIC
- OMA
- CloudWatchHub

OSS

- FIWARE
- OASIS
- FIT IoT-LAB
- CONTIKI-NO
- RIOT
- ASTM
- NGI-X

Edge Computing Standards Landscape

- Document structure similar to IoT Standards Landscape Document
 - **Domain Categories** (*with Sectors*)
 - Domain Categories refers to the **functional or thematic area** addressed by a standard
 - Some differences (compared to IoT Standards):
 - missing, e.g. „Social Community & Wellbeing“, „Environment“, „Education, Training & Learning“, „Food & Agriculture“
 - **Labels**
 - „NEW“ and „UPDATED“ entries (compared to version 1)

Edge Computing Standards by Domain Category

Domain Category	# standards
Case Studies and Rankings	1
Connectivity	76
Data and Architecture	92
Industry and Business	36
Information Processing	5
Infrastructure	20
Organisation	2
Privacy and Security	28
Safety and Emergencies	2
SmartCity	1
Strategies Policies and Planning	1
Sustainability and Resilience	4
Terms and Definitions	13

Edge Computing Standards by Sector

- **Sector** represents the primary **application contexts** or **industrial domains** in which Edge Computing standards are used.
- **Less #** of Sectors (compared to IoT), missing e.g. Health, Water

Sector	# standards	„top“ domains
Horizontals & Verticals	200	Connectivity (76), Data and Architecture (65)
Mobility	9	Infrastructure (3)
Manufacturing	66	Industry and Business (34), Data and Architecture (22)
SmartCity	1	SmartCity
Energy	3	Data and Architecture (2)

European Telecommunications Standards Institute

- ETSI is organised in **Technical Committees** (TC) and **Industrial Specification Groups** (ISG)
- *Selected Committees / Groups:*
 - ISG **MEC** (Multi-access Edge Computing)
 - TC **SmartM2M** (Smart Machine-to-Machine communications)
 - TC **CYBER** (Cyber Security)
 - TC **MTS** (Methods for Testing and Specification)

ETSI: TC MTS

- MTS is responsible for the *identification and definition of **Advanced Specification and Testing Methods***
- Working groups: **TST** (Testing), **TDL** (Test Description Language), **AI**
- **WG Testing** develop *studies, guidelines, test catalogues & specifications* for specific **ICT technologies**
(not already covered by existing ETSI committees/groups):
 - published documents:
e.g. COAP/MQTT testing, Security modules/validation
 - documents under development:
e.g. Security Validation methodology, Device Security Passport

ISO/IEC

- ISO/IEC is organized in **Technical Committees** (TC) and **Joint Technical Committees** (JTC)
- *Selected Committees / Sub-Committees* (SC):
 - JTC1 **SC 41** (Internet of Things and Digital Twin)
 - JTC1 **SC 27** (Information security, cybersecurity and privacy protection)
 - JTC 1 **SC 38** (Cloud Computing and Distributed Platforms)
 - IEC **TC 65** (Industrial-process measurement, control and automation)

ISO/IEC: JTC1/SC41

- **Internet of Things and Digital Twin**
- *Selected* Working Groups (WG) and Joint Working Group (JWG)
 - **WG 3** (IoT Foundational Standards)
 - **WG 4** (IoT Interoperability)
 - **JWG17** with IEC TC65 (System interfaces between energy systems using operational technologies)
- *Selected* documents
 - ISO/IEC **IS 30141** (IoT Reference Architecture)
 - ISO/IEC **TS 30149** (IoT Trustworthiness principles)
 - ISO/IEC **CD 30198** (Edge computing gateway interoperability framework)

Outlook & Acknowledgements: IoT and Edge Computing

- Next steps:

- **Gap** analysis & **standardisation needs** started
- Report to be published 12/2025

- Thanks to:

- Editor **Georgios Karagiannis**
- Series Editors **Maria Giuffrida** & **XiaoRui Zhang**
- **29** Contributors from **28** Organisations in many European Countries
- Supporting Teams from **AIOTI** & **EUOS/StandICT**

Questions from the Audience

Moderator: Antonio Kung, AIOTI WG Standardisation Chairman

Wrap up and end of the Webinar

Antonio Kung, AIOTI WG Standardisation Chairman



Thank you for listening

Any questions?

You can email us at sg@aioti.eu