



ISO/IEC JTC 1/SC 41 N1181

ISO/IEC JTC 1/SC 41

Internet of Things and related technologies

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ISO/IEC JTC 1/SC 41 Outreach Presentation 2019

2019-11

St. Petersburg, Russia

JTC 1/SC 41 Mission

Standardization in the area of
Internet of Things and related technologies.

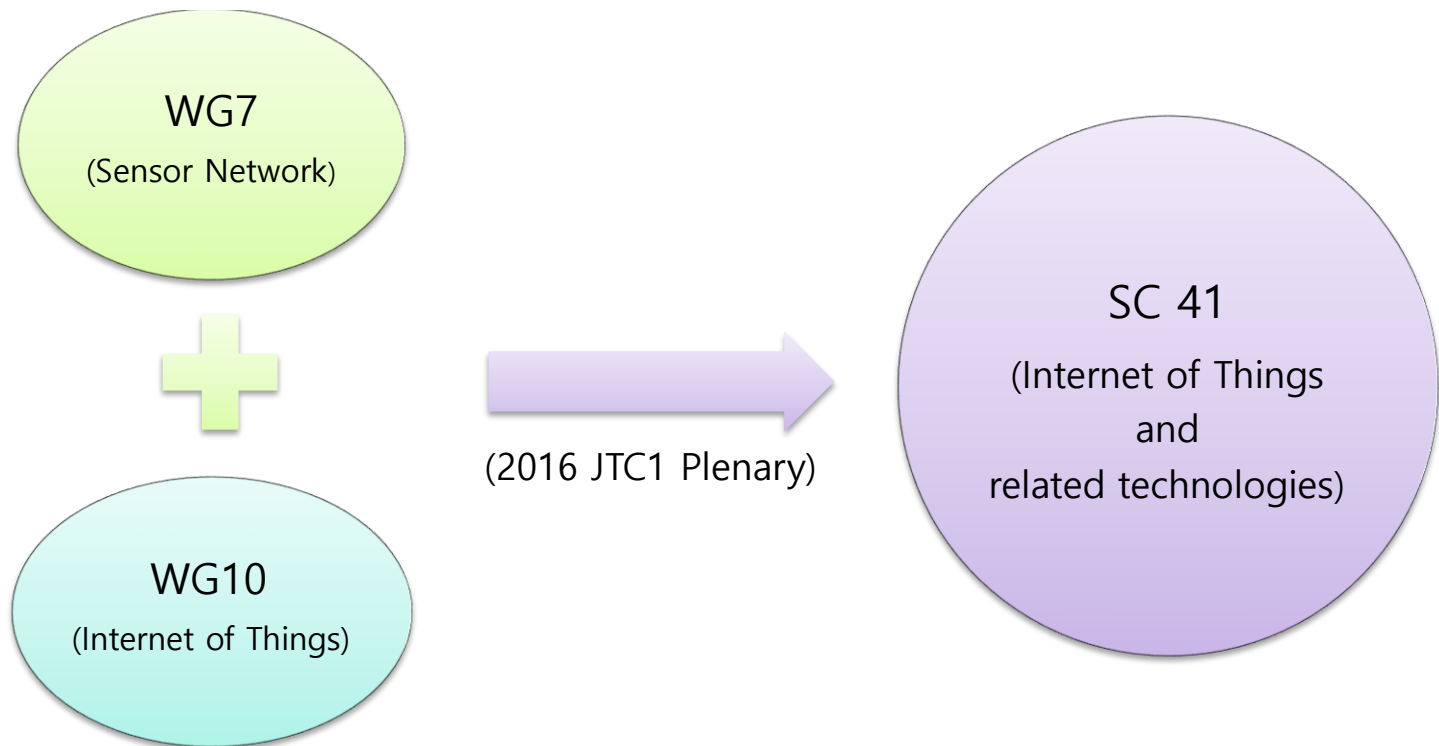
1. Serve as the focus and proponent for JTC 1's standardization programme on the Internet of Things and related technologies, including Sensor Networks and Wearables technologies.
2. Provide guidance to JTC 1, IEC, ISO and other entities developing Internet of Things related applications.

Background

SC 41 establishment

Resolution 12 – Establishment of JTC 1 Subcommittee SC 41, Internet of Things and related technologies

JTC 1 establishes a Systems Integration entity (see SD 24, Systems Integration Standardization Guidelines) in the form of a new Subcommittee 41 on Internet of Things and related technologies initially comprising the work of JTC 1/WG 7 and JTC 1/WG 10.



6 meetings since 2017



(2017.05 / Seoul, Korea)



(2017.11 / Delhi, India)



(2018.05 / Berlin, Germany)



(2018.11 / Yokohama, Japan)



(2019.5 / Chongqing, China)



(2019.11 / St.Petersburg, Russia)

SC 41 logo



(1) without the title

This logo should be used on presentations, websites and other material to represent or bring attention to SC41. It will typically be included with content that either talks about SC41 and related work activities.

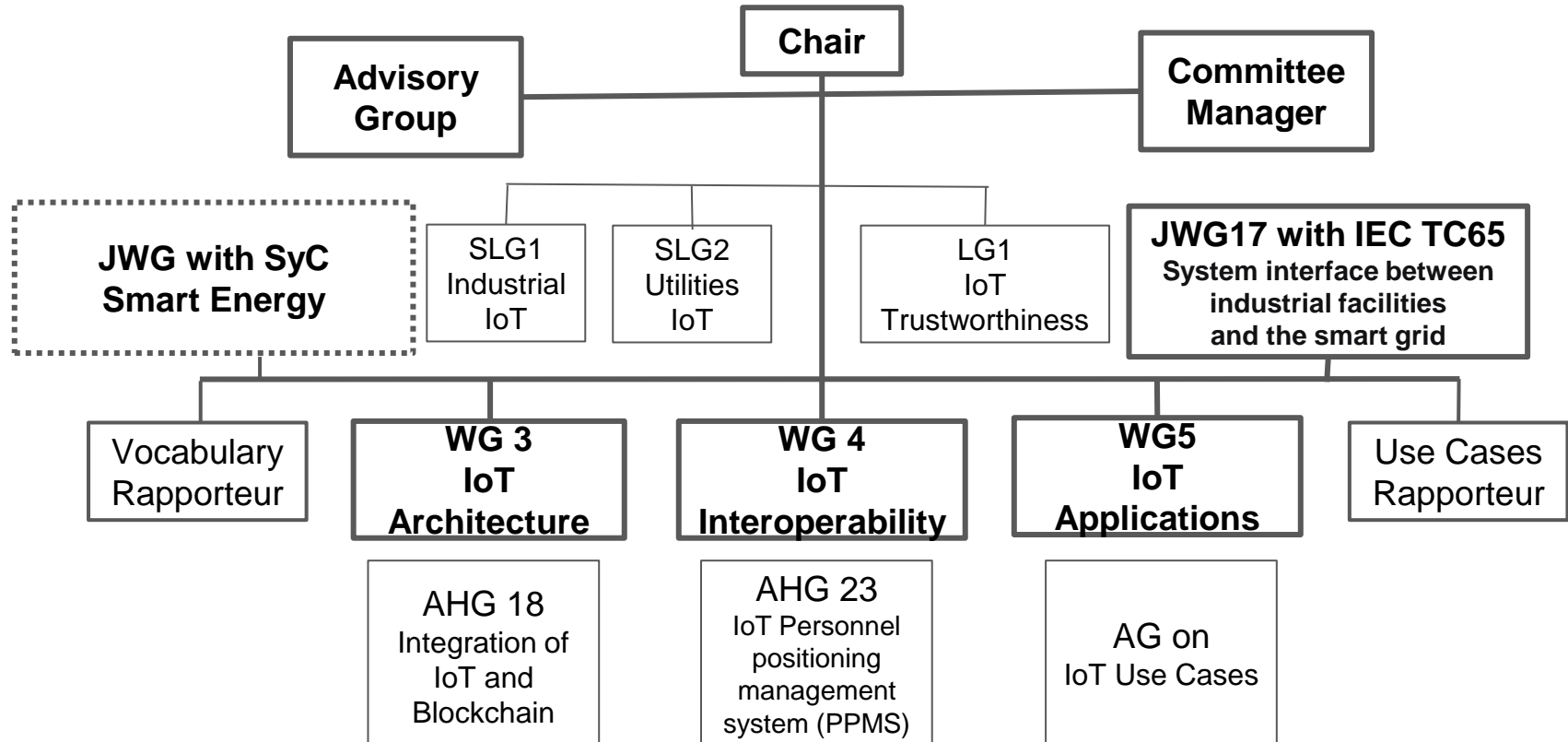


(2) with the title

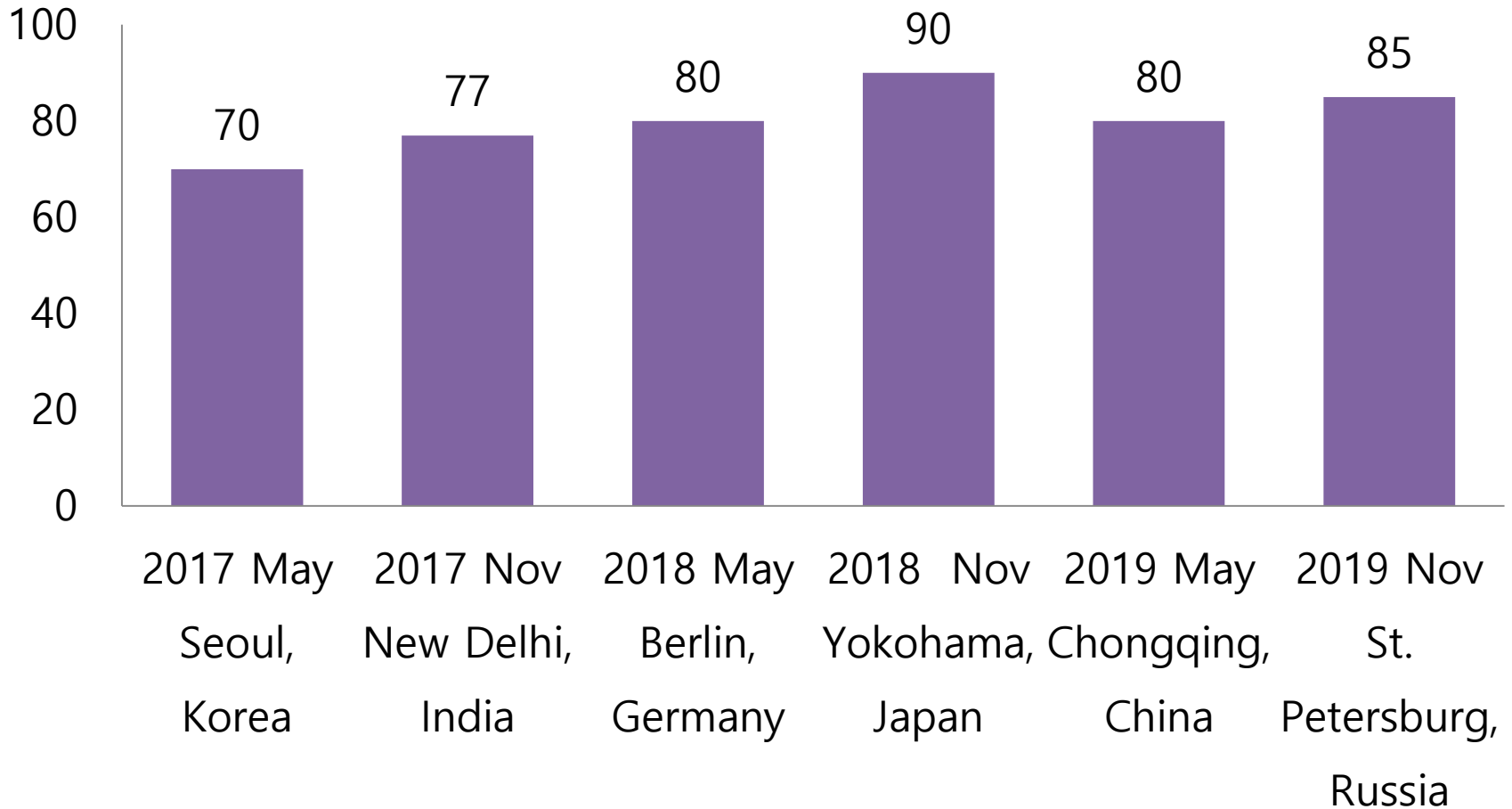
This logo should be used when no related written material is provided. This would include posters, banners and presentations where SC41 is part of larger group.

Summary of SC 41 activities

SC 41 Structure (November 2019)



Plenary attendance statistics



Standard Development

- 21 Published Standards
- 19 projects under development
 - WG 3: 6 projects
 - WG 4: 4 projects
 - WG 5: 8 projects
 - JWG 17 (with IEC TC 65): 1 project
 - ※ IEC TC 65: Industrial-process measurement, control and automation

SC 41 P & O membership (as of May 2019)

- 25 P-members and 13 O-members

*P-member: Participating member / O-member: Observing member

- P-members (voting)

- Australia , Austria, Belarus, Belgium, Canada, China, Denmark, Finland, France, Germany, India, Israel, Italy, Japan, Korea, Luxembourg, Malaysia, Netherlands, Norway, Russia, Singapore, Sweden, Switzerland, UK, US

- O-members (observing)

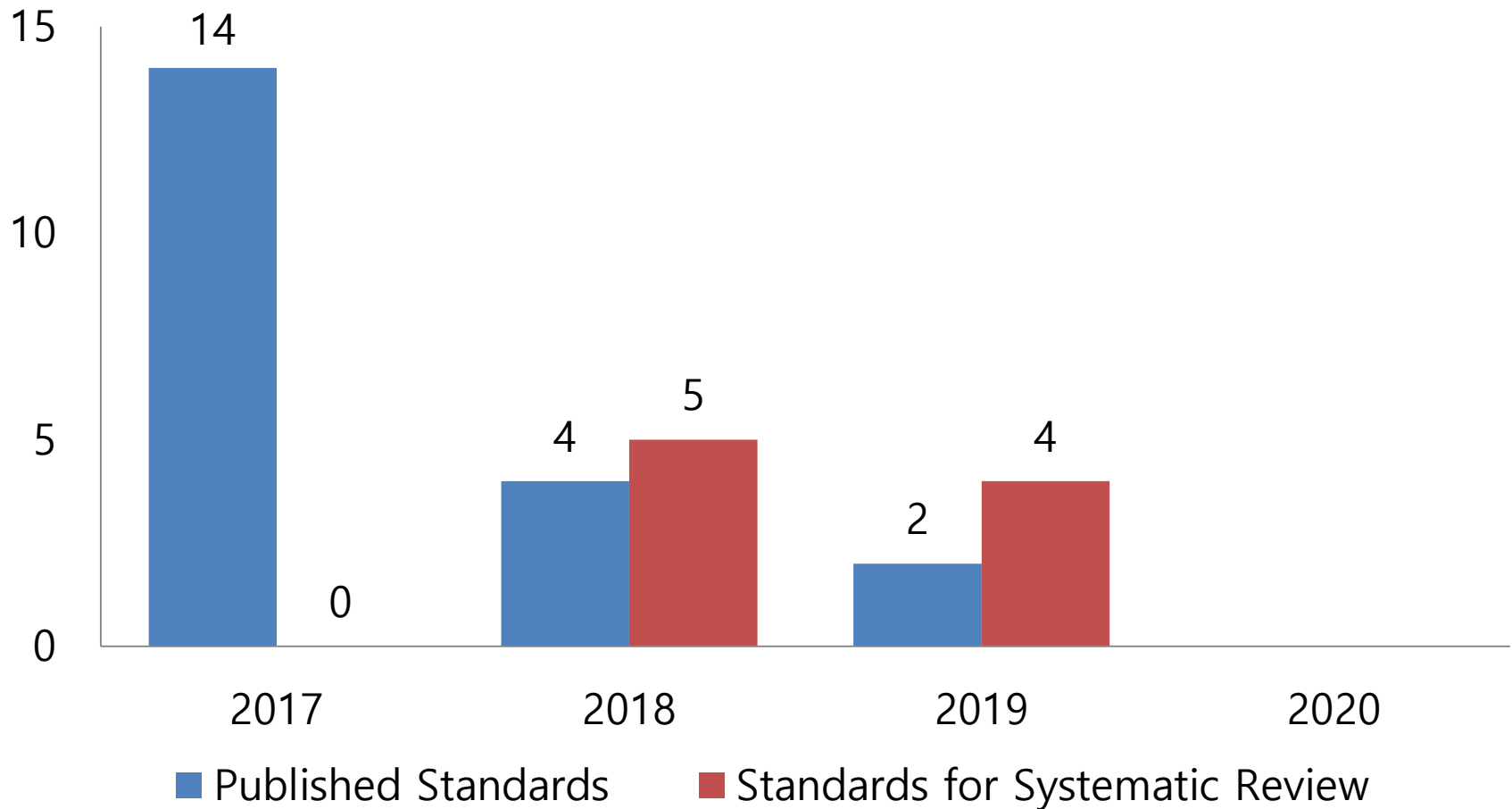
- Argentina, Ireland, Iran, Iceland, Kenya, Mexico, Philippines, Pakistan, Poland, Portugal, Romania, Saudi Arabia, Slovakia

SC 41 liaisons

Liaison Type	No. of Liaisons
Internal Liaisons within ISO	18
Internal Liaisons within IEC	16
Internal Liaisons within ISO/IEC JTC 1	20
External Category A	8
External Category C	6

The current list of liaisons is available in SC41N1145.

SC 41 Production (as of Nov. 2019)



Published Standards

Reference	Title	Year
ISO/IEC 30141	Internet of Things (IoT) - Reference architecture	2018
ISO/IEC 20924	Internet of Things (IoT) – Vocabulary	2018
ISO/IEC 21823-1	Internet of Things (IoT) - Interoperability for IoT systems - Part 1: Framework	2019
ISO/IEC TR 22417	Information technology - Internet of things (IoT) - IoT use cases	2017
ISO/IEC 29182-1	Information technology - Sensor networks: Sensor Network Reference Architecture (SNRA) - Part 1: General overview and requirements	2013
ISO/IEC 29182-2	Information technology - Sensor networks: Sensor Network Reference Architecture (SNRA) - Part 2: Vocabulary and terminology	2013
ISO/IEC 29182-3	Information technology - Sensor networks: Sensor Network Reference Architecture (SNRA) - Part 3: Reference architecture views	2014
ISO/IEC 29182-4	Information technology - Sensor networks: Sensor Network Reference Architecture (SNRA) - Part 4: Entity models	2013
ISO/IEC 29182-5	Information technology -- Sensor networks: Sensor Network Reference Architecture (SNRA) -- Part 5: Interface definitions	2013
ISO/IEC 29182-6	Information technology -- Sensor networks: Sensor Network Reference Architecture (SNRA) -- Part 6: Applications	2014
ISO/IEC 29182-7	Information technology -- Sensor networks: Sensor Network Reference Architecture (SNRA) -- Part 7: Interoperability guidelines	2015

Published Standards(Cont')

Reference	Title	Year
ISO/IEC 30140-1	Information technology - Underwater acoustic sensor network (UWASN) - Part 1: Overview and requirements	2018
ISO/IEC 30140-2	Information technology - Underwater acoustic sensor network (UWASN) - Part 2: Reference architecture	2017
ISO/IEC 30140-3	Information technology - Underwater Acoustic Sensor Network (UWASN) – Part 3: Entities and interfaces	2018
ISO/IEC 30140-4	Information technology – Underwater Acoustic Sensor Network (UWASN) - Part 4: Interoperability	2018
ISO/IEC 30101	Information technology -- Sensor networks: Sensor network and its interfaces for smart grid system	2014
ISO/IEC 30128	Information technology -- Sensor networks -- Generic Sensor Network Application Interface	2014
ISO/IEC 19637	Information technology - Sensor network testing framework	2016
ISO/IEC 20005	Information technology - Sensor networks - Services and interfaces supporting collaborative information processing in intelligent sensor networks	2013
ISO/IEC TR 22560	Information technology - Sensor network - Guidelines for design in the aeronautics industry: Active air-flow control	2017
ISO/IEC TR 30148	Internet of things (IoT) - Application of sensor network for wireless gas meters (*New from Chongqing meeting)	2019

SC 41 Subgroups

Groups	Main Role
WG 3 (IoT Architecture)	IoT vocabulary, architecture and frameworks
WG 4 (IoT Interoperability)	IoT interoperability, connectivity, IoT platform, middleware, conformance and testing
WG 5 (IoT Applications)	IoT applications, Uses Cases, tools, and implementation guidance
JWG 17 (Joint WG with IEC TC65)	※ IEC TC65: Industrial-process measurement, control and automation
AG 20 (SLG on Industrial IoT)	Coordinate liaisons activities between all SDO's, internal and external, in the IIoT sector and SC41
AG 21 (SLG on Utilities IoT)	Coordinate liaisons activities between all SDO's, internal and external, in the Utilities IoT sector and SC41
AG 22 (LCG on IoT Trustworthiness)	Encourage and assist SC27 to maintain compatibility between their standards and JTC 1/SC41 standards

SC 41 Subgroups (Cont')

Groups	Main Role
<p>AHG 14 (Business Plan)</p>	<p>Update and report the SC 41 business plan to the JTC 1 Plenary.</p>
<p>AHG 15 (Communication and Outreach)</p>	<p>Create and maintain the SC 41 Wikipedia pages. Maintain the SC 41 Linked-in site. Create a public repository for outreach materials.</p>
<p>AHG 18 (SG on Integration of IoT and Blockchain)</p>	<p>Identify standardization gaps in the field of the integration of IoT and Blockchain within the scope of JTC 1/SC 41.</p>
<p>AHG 23 (AHG on IoT Personnel positioning management system (PPMS))</p>	<p>Investigate the main technologies in the typical application scenarios of the IoT system for personnel positioning application</p>
<p>AHG 24 (IoT use cases)</p>	<p>To identify IoT use cases and populate the use case template (SC41N0962) with specific information on each use case, and explore how they relate to SC41's current and potential future work.</p>

On-going Projects (WG3: 6 projects)

Standardization in the area of
IoT vocabulary, architecture and frameworks

Project	Stage	Abstract
ISO/IEC 30149 ED1 Internet of Things (IoT) - Trustworthiness framework	WD	This Standard provides frameworks, guidance and references for trustworthiness considerations and controls of Internet of Things(IoT) Solutions
ISO/IEC 30165 ED1 Internet of Things (IoT) - Real-time IoT framework	WD	This standard specifies the system of a areal-time Internet of Things(RT-IoT) system
ISO/IEC 30141 ED2 Internet of Things (IoT) - Reference architecture	WD	This document specifies a general IoT Reference Architecture in terms of defining system characteristics, a Conceptual Model, a Reference Model and architecture views for IoT.
ISO/IEC 20924 ED2 Internet of Things (IoT) - Vocabulary	WD	This document provides a definition of Internet of Things along with a set of terms and definitions. This document is a terminology foundation for the Internet of Things.

On-going Projects (Cont') (WG3: 6 projects)

Project	Stage	Abstract
ISO/IEC 30147 ED1 Internet of Things (IoT) – Integration of IoT trustworthiness activities in ISO/IEC/IEEE 15288 systems engineering processes	CD	This document provides system life cycle processes to implement and maintain trustworthiness in an IoT system or service by applying and supplementing ISO/IEC/IEEE 15288: 2015. The system life cycle processes are applicable to IoT systems and services common to a wide range of application areas.
ISO/IEC TR 30164 ED1 Internet of things (IoT) - Edge Computing	DTR	The scope of this Technical Report is the common concepts, terminologies, characteristics, concerns use cases and technologies of Edge Computing for IoT systems applications. The Technical Report is also meant to assist in the identification of potential areas for standardisation in Edge Computing for IoT.

On-going Projects (WG4: 4 projects)

Standardization in the area of
**IoT interoperability, connectivity, IoT platform,
middleware, conformance and testing**

Project	Stage	Abstract
ISO/IEC 30161 ED1 Internet of Things (IoT) - Requirements of IoT data exchange platform for various IoT services	CD	This International Standard specifies requirements for an Internet of Things (IoT) data exchange platform for various services
ISO/IEC 21823-2 ED1 Internet of Things (IoT) - Interoperability for IoT Systems - Part 2: Transport interoperability	FDIS	This document describes: - Network connection framework, interfaces and requirements between IoT systems; - Network connection framework, interfaces and requirements within an IoT system.

On-going Projects(Cont') (WG4: 4 projects)

Project	Stage	Abstract
ISO/IEC 21823-3 ED1 Internet of Things (IoT) - Interoperability for IoT Systems - Part 3: Semantic interoperability	CD	This document provides detail on the basic concepts of Semantic Interoperability for IoT systems, as described in the facet model of ISO 21823 Part 1.
ISO/IEC 21823-4 ED1 Internet of Things (IoT) - Interoperability for Internet of Things Systems –Part 4: Syntactic interoperability	WD	This document specifies the IoT interoperability from a syntactic point of view. <ul style="list-style-type: none"> - A principle of how to achieve syntactic interoperability among IoT systems which include IoT devices. - Requirements on information related to IoT devices for syntactic interoperability - A framework for processes on developing information exchange rules related to IoT devices from the syntactic viewpoint.

On-going Projects (WG5: 8 projects)

Standardization in the area of
**IoT applications, Uses Cases, tools,
and implementation guidance**

Project	Stage	Abstract
ISO/IEC 30144 ED1 Internet of Things (IoT) – Wireless sensor network system supporting electrical power substation	DIS (CDV)	This document specifies: - Intelligent Wireless Sensor Network (iWSN) in the perspectives of iWSN's system infrastructure and communications internal and external to the infrastructure; and - Technical requirements for iWSN to realize the smart electrical power substations.
ISO/IEC 30142 ED1 Internet of Things (IoT) - Underwater Acoustic Sensor Network (UWASN) - Network management system overview and requirements	FDIS	This document provides the overview and requirements of a network management system in underwater acoustic sensor network(UWASN) environment

On-going Projects(Cont') (WG5: 8 projects)

Project	Stage	Abstract
ISO/IEC 30143 ED1 Internet of Things (IoT) - Underwater Acoustic Sensor Network (UWASN) – Application Profiles	FDIS	This document provides the guidelines for designing and developing the new application in the underwater environment such as fish farming, environment monitoring, harbor security, etc.
ISO/IEC 30162 ED1 Internet of Things (IoT) - Compatibility requirements and model for devices within industrial IoT systems	CD	This document specifies network models for IIoT connectivity and general compatibility requirements for devices and networks within IIoT systems
ISO/IEC 30163 ED1 Internet of Things (IoT) - System requirements of IoT/SN technology-based integrated platform for chattel asset monitoring supporting financial services	CD	This international standard specifies the system requirements of an Internet of Things(IoT)/Sensor Network(SN) technology-based platform for chattel asset monitoring supporting financial services

On-going Projects(Cont') (WG5: 8 projects)

Project	Stage	Abstract
ISO/IEC TR XXXXX ED1 Internet of Things (IoT) - Underwater Communication Technologies for IoT	WD-TR	This document describes four communication technologies that can transmit and receive data in water: acoustic communication, optical communication, VLF/ELF, and MFC
ISO/IEC TR XXXXX ED1 Internet of Things (IoT) - Guidance on the application of the IoT Reference Architecture to Wearables and Implantables based IoT Systems	WD-TR	To provide guidance on the application of the IoT Reference Architecture for the design and implementation of wearable systems.

On-going Projects(Cont') (WG5: 8 projects)

Project	Stage	Abstract
PWI-TR Internet of Things (IoT) - Integration of IoT and DLT/Blockchain: Use Cases	PWI-TR	<p>This document describes use cases on the integration of DLT/Blockchain within IoT, which includes but not limited to the following content:</p> <ul style="list-style-type: none">• To generate the use cases on integration of DLT/blockchain within IoT referring to other template of use case.• To collect the use cases of IoT system supported by DLT/blockchain technology with the unified template.• The use cases shall be documented as per SC41 template.

On-going Projects

(JWG 17 (with IEC TC 65): 1 project)

Project	Stage	Abstract
IEC 62872-2 ED1 Internet of Things (IoT) – Application framework for industrial facility demand response energy management	CD	This document presents an IoT application framework for industrial facility demand response energy management (FDREM) in smart grid, to enable efficient information exchange between industrial facilities using IoT related communication technologies.

SC41 Saint-Petersburg Plenary Highlights

Work Program:

- 9 projects (Work Item) have progressed
- 4 New Work Items have been tabled
- 2 Technical Reports have been initiated
- 1 Preliminary Work Item (PWI) has been registered
- 3 standards have been reconfirmed
- 1 standard revision has been approved

Strategic:

- Approval Joint work (JWG) with the IEC SyC Smart Energy
- Initiation of negotiations of Joint Work with IEC/TC 57
- Invitation to ISO/TC307 (Blockchains) for Joint Work

SC 41 Committee Manager

- Further assistance and information, please contact:
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 - Ms. Jooran LEE (jooran@ksa.or.kr)
 - Assistant Committee Manager
 - Mr. Joey LEE (joey2k@tta.or.kr)