



International Organization for Standardization  
Organisation internationale de normalisation  
Международная организация по стандартизации

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Reference ISO/TMB IWA 39

Date 2020-11-18

**Invitation to an international workshop on: “Gap analysis for standardization on sustainable and human-centered societies enabled with cyber physical systems” (IWA 39)**

Dear ISO Members,

Following approval by the Technical Management Board of a proposal from the Japan Industrial Standards Committee (JISC), we are pleased to enclose an invitation, including registration links and background information for the workshop to develop an International Workshop Agreement (IWA 39) on ‘Gap analysis for standardization on sustainable and human-centered societies enabled with cyber physical systems’.

**Workshop dates**

**IWA Meeting #1:** 10<sup>th</sup> February, 2021 (DAY1) 12:00-15:00 UTC  
11<sup>th</sup> February, 2021 (DAY2) 12:00-15:00 UTC

**Location:** Online virtual workshop (Zoom)

We ask that you register for the workshop not later than **8 January 2021** using the link in the attached invitation. We would be grateful if you could publicize this event in your country.

Yours sincerely,

Secretary to the Technical Management Board

Encl.: - Invitation, including registration link  
- Background information



## **ISO/IWA 39 "The Gap Analysis for Standardization on Sustainable and Human-centered Societies Enabled with Cyber Physical Systems"**

### **Invitation to an international workshop**

The Japan Industrial Standards Committee (JISC) invites interested stakeholders to join the ISO International Workshop Agreement (IWA 39) on "*The Gap Analysis for Standardization on Sustainable and Human-centered Societies Enabled with Cyber Physical Systems*".

Cyber-Physical-System (CPS) is a system which collects inputs from physical processes through means such as sensor networks, analyzes the data and gives feedback to physical processes, affecting their future status. CPS not only makes our lives convenient, but also has huge potential to contribute social issues addressed by the SDGs. However, while there are great expectations for CPS, the integration of cyberspace and physical space often raises an anxious in our daily lives.

Since we are currently experiencing a pandemic affecting our society, CPS integration into our society has been accelerated. CPS is inevitably penetrating into our daily lives and potentially having an extremely large impact on the whole society, both beneficially or adversely.

In this IWA 39, we will conduct an analysis on how sustainable and human centered society are, or can be, enabled with CPS. By mapping relevant activities conducted by SDOs and TC/SCs on a big picture and discussing scenarios for the future society, we will be able to identify gaps for the needs of global harmonization, which is the goal of this IWA.

### **The international workshop dates are:**

**IWA Meeting #1:** 10<sup>th</sup> February, 2021 (DAY1) 12:00-15:00 UTC / Zoom  
11<sup>th</sup> February, 2021 (DAY2) 12:00-15:00 UTC / Zoom

NOTE Meetings are scheduled to be held multiple times. The schedule will be announced later.

We ask that you register for the workshop not later than 8th January 2021(see Clause 2). We would be grateful if you could join this important work.

Sincerely yours,

**Yoshiaki Ichikawa**  
Chair IWA 39

**Tomoyuki Endo**  
Secretary, IWA 39

# Meeting Detail

## 1. Schedule for the development of the IWA

The IWA 39 Introductory meeting will be held on February 10th and 11th, 2021 by Zoom. The schedule for other meetings including exact dates and detailed plan will be announced later.

**IWA Meeting #1:** 10<sup>th</sup> February, 2021 (DAY1) 12:00-15:00 (UTC+0) / Zoom  
11<sup>th</sup> February, 2021 (DAY2) 12:00-15:00 (UTC+0) / Zoom

NOTE The link to the Zoom meeting will be provided to the participants later.

## 2. Registration

To participate in the workshop, please register through the following link **not later than 8th January 2021**.

- **Registration form:** [http://webdesk.jsa.or.jp/information/form/ISO\\_IWA/](http://webdesk.jsa.or.jp/information/form/ISO_IWA/).

- 1) Please fill your name and e-mail address and indicate which groups (e.g. ISO/TC/SCs, IEC, ITU, or external organizations) you are representing or if you would like to participate as an observer.
- 2) The participants will receive relevant documents for the meeting later.
- 3) Registration is free.

## 3. Process of the workshop

No.	Date	Event	Description
1.	8 <sup>th</sup> January, 2021	Registration deadline	Registration details, see clause 2
2.	13 <sup>th</sup> January, 2021	Relevant documents	Circulation of relevant documents
3.	10 <sup>th</sup> -11 <sup>th</sup> February, 2021	<b>Meeting # 1</b>	Introductory meeting - Presentation from representatives.
4.	-	Preparation of WD	Preparation of the initial draft .

5.	TBA	<b>Meeting</b>	Discussion on the WD.
6.	TBA	<b>Meeting</b>	Confirmation of the IWA final draft Recommendation for the future work.

## 4. Meeting organizer

### Workshop chair (Project leader)

Dr. Yoshiaki Ichikawa (Tama University) [y.ichikawa@sbl.or.jp](mailto:y.ichikawa@sbl.or.jp)



Dr. Ichikawa (Yoshi) is currently, a visiting professor of Tama University, Center for Rule Making Strategy and Tokyo City University, Faculty of Environmental Studies as well as the CEO of Sustainable Business Laboratory in Japan.

His international activities include the chair of ISO/TC 268/SC 1 (Smart Community Infrastructures), a WG convenor in ISO/TC 323 (Circular Economy), former chair of IEC/TC 111 (Environmental Standardisation) and an expert of ISO/TC 207 (Environmental Management) as well as an observer of CENELEC/TC 111X.

He received Dr. Eng. degree in 1987 from the University of Tokyo, Tokyo, Japan. He started working for Hitachi, Ltd in 1979. He was first engaged in robotics, artificial intelligence, and network management. In 2000 he started providing consulting in the environmental field to top management of leading companies in Japan. Since 2005 he had been with Environmental Strategy Office and provided internal consulting to all group companies and business divisions mainly regarding ecodesign, global legal compliance, and international standards. In 2016 he started heading Chief Architect Office in R&D division to incubate startups of new businesses based on novel technologies in Hitachi. Since 2016 he has been gradually shifting part of his intellectual resources to research, education and consulting as a visiting professor of Tama University, Center for Rule Making Strategy and Tokyo City University, Faculty of Environmental Studies.

### Workshop secretary

Tomoyuki Endo (Japanese Standards Association) [endo@jsa.or.jp](mailto:endo@jsa.or.jp)

If you have any questions, please contact the IWA 39 workshop secretariat ([iwa39secretary@jsa.or.jp](mailto:iwa39secretary@jsa.or.jp)).

## **5. Purpose and Justification of the proposal of IWA 39**

### **5.1 Purpose**

The main purpose of this International Workshop is to discuss and agree between relevant TC/SCs and other stakeholders on what kind of new filed of activities to be addressed and how to deal with those in the field of the integration of Cyber Physical Systems (CPS) and sustainable and human-centered societal systems. The proposed IWA starts with identification of issues, then conducts gap analysis between existing works and standardization needs, and finally agrees on future possible areas of standards to complement the gap.

Note1: Cyber Physical System (CPS) is a system which collects diverse data from the physical space with some means such as sensor networks, analyzes the data and transforms the data into explicit knowledge with processing technologies in the cyberspace and influence on the future status of physical space.

Note2: Human Centered Society is an inclusive society where diverse people can enjoy a high quality of life that is fully active and comfortable and meeting various needs of people including accessibility needs, regardless of region, age, sex, language, etc. by providing necessary items and services.

### **5.2 Goal of this IWA**

The goal of this IWA is to make a discussion on "The Gap Analysis for Standardization on Sustainable and Human-centered Societies Enabled with Cyber Physical Systems" and to report the results including gaps identified and future possible areas of standards to complement the gap.

### **5.3 Contribution to Sustainable Development Goals (SDGs)**

The discussion in this International Workshop can include impacts on the Goal 10 "Reduced inequalities" of SDGs and others such as but not limited to Goal 12 "Responsible consumption and production", Goal 8 "Decent work and economic growth", and Goal 9 "Industry, innovation and infrastructure". The implementation of Cyber Physical Systems to societal systems has a large potential to contribute to achieve various SDGs with its autonomous decision making and optimization of resource allocation beyond ordinary human senses. However, the implementation of CPS also has a potential risk of worsening the inequality in the world due to its technical nature of collecting and utilizing a large amount of data. Any design of CPS based on malicious intentions or even unconscious biases could function as a machine of human exploitation. This International Workshop will be a place to discuss how we could take this powerful technology and utilize it to reduce the inequity by way of setting an effective International Standards in this field.

## 5.4 Context and justification

The integration of Cyber Physical Systems to industrial systems has been widely discussed. Various initiatives, such as Industry 4.0, are proposing and showcasing the possible future shapes of industry.

The next large-scale transformation, leading to a human-centered society based on a system that highly integrates cyberspace and physical space has been a worldwide hot topic, as an example, Society 5.0 in Japan.

As shown in Figure 1, we have experienced "Information Society" started in 1990s where cyberspace is utilized by human and affects physical space. A typical example is frequent use of E-market where people can order milk through a website, then the milk is delivered via human delivery, and finally stored into a refrigerator. However, our new upcoming society enabled by Cyber Physical Systems is more advanced where the refrigerator automatically orders the milk before running out, then a drone delivers it, and a household robot automatically stores it in the refrigerator. This episode will not be a science fiction anymore.

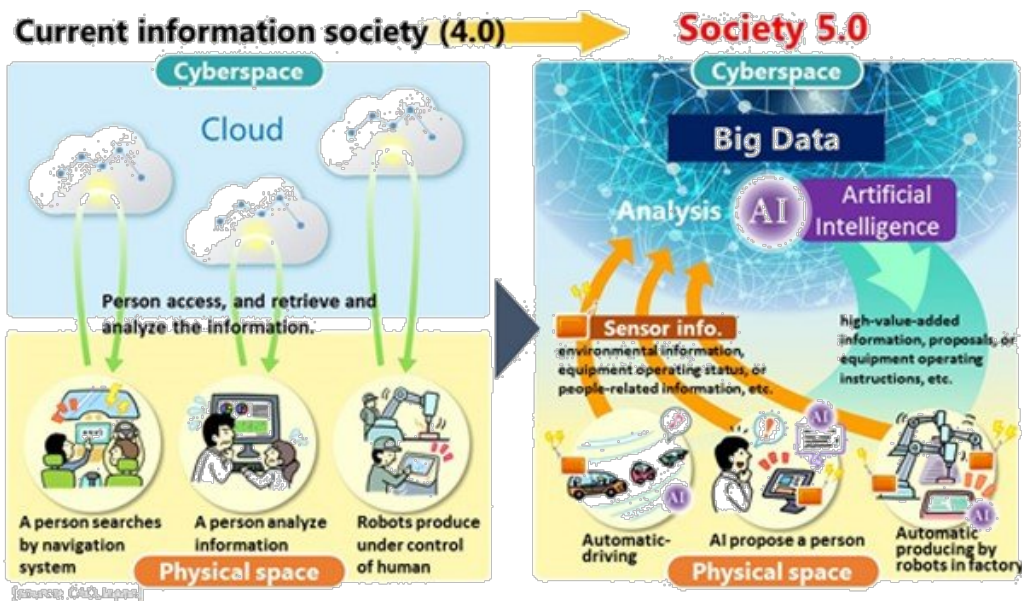


Figure 1 Society enabled with Cyber Physical Systems

Such a difference will not only change personal human lives but also have a huge potential to solve complicated societal issues as represented by SDGs. However, as nowadays well known, the issues relevant to those goals are interfering each other. For example, trade-off relations exist in resources management and environment; for instance, material diversification as a result of innovation in renewable materials could make it more difficult to achieve a high recycling rate. Although there is no simple and almighty silver bullet for this kind of complicated issue linkages, one of realistic and effective countermeasures to alleviate the trade-off will be the appropriate integration of Cyber Physical Systems

including, but not limited to, IoTs, Robotics and Artificial Intelligence with societal systems.

On the other hand, such an advanced and complex society with cyberspace and physical space raises many anxiety e.g. regarding basic human rights. The new society shall be human-centered even though it is enabled by Cyber Physical Systems. For example, IoT sensors are going to be ubiquitously embedded in our daily lives and to automatically send abundant information acquired. Such valuable data are expected to be shared and exchanged without barriers (data free flow) for many purposes. On the other hand, privacy, security, data-ownership, etc, shall be ensured throughout the life cycle of the data. This leads to the idea of "Data Free Flow with Trust" as proposed in G20, 2019.

In addition, there is a reasonable warning that some aspects of Cyber Physical Systems such as autonomous decision making and feedback to the real world could cause a result which does not in line with human values, dignity or basic rights even though it is more efficient. The numbers of various initiatives to discuss AI ethics and principles or the automated driving have shown the importance of this issue.

As CPS is more integrated into society and has direct impacts on general public at a global level, it is an urgent necessity to discuss the potential of international standardization. In fact, multiple Standard Organizations (SDOs), international forums and initiatives have already launched relevant activities on this issue. However no comprehensive big picture is available clearly outlining those activities with their relationships and thus this proposed work is necessary before the proliferation of duplicating standards. The main purpose of this International Workshop is to discuss and agree between relevant TC/SCs of ISO and other stakeholders regarding the mapping of existing/ongoing works, and what kind of new filed of activities to be addressed and how to deal with those in ISO or in other organizations if necessary.

Some movements already started such as Society 5.0 in Japan, Slovenia and Indonesia, which deserves to be shared at workshop meetings.

- **Japan:** [https://www8.cao.go.jp/cstp/english/society5\\_0/index.html](https://www8.cao.go.jp/cstp/english/society5_0/index.html)

- **Slovenia:** <https://www.btc.si/en/press-releases/2019/02/society-5-0-slovenias-opportunity-for-a-technological-breakthrough/>

- **Indonesia:**

[https://bsn.go.id/uploads/download/2\\_standardization\\_in\\_indonesia\\_towards\\_society\\_5.0\\_-\\_ka\\_bsn\\_1.pdf](https://bsn.go.id/uploads/download/2_standardization_in_indonesia_towards_society_5.0_-_ka_bsn_1.pdf)