Standardization activities on “Society 5.0” in Japan

27 March 2019
Dr. Masahide OKAMOTO, Chair,
Society 5.0 Standardization Promotion Committee
(supported by METI)
So what is Society 5.0?

Society 5.0 represents the 5th form of society in our human history, chronologically following hunting, farming, industry, and information. The Fourth Industrial Revolution is creating new values and services one after another, bringing a richer life to all.

Our daily life will change. Our working style will change. Let's sneak a peek at Society 5.0.

Source: Public Relations Office, Government of Japan
So what is Society 5.0?

Every day, in every way, the future is just a half-step away.

Could this be your future, too?

Enjoy each scene of our special WEB movie.


Source: Public Relations Office, Government of Japan
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Industry 4.0 and Society 5.0

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<tr>
<th>Scope</th>
<th>Industry</th>
<th>An entire society</th>
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<tbody>
<tr>
<td>Category</td>
<td>Means</td>
<td>Results</td>
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Industry 1.0 (1st Industrial Revolution)
- Around 1800, UK
  - Light industry

Industry 2.0 (2nd Industrial Revolution)
- Around 1900, USA
  - Heavy and chemical industry

Industry 3.0 (3rd Industrial Revolution)
- Around 2000, USA
  - Computer and internet

Industry 4.0 (4th Industrial Revolution)
- 2011~, Germany proposed
  - Digital Transformation
  - AI, IoT, Blockchain

Society 1.0 (Hunting Society)
- The emergence of human beings

Society 2.0 (Agrarian Society)
- 13000 BC
  - The development of irrigation techniques/Firm establishment of settlement

Society 3.0 (Industrial Society)
- End of 18th century~
  - Invention of steam locomotive start of mass production

Society 4.0 (Information Society)
- End of 20th century~
  - Invention of computer
  - Start of distribution of information

Society 5.0 (Super Smart Society)
- End of 21st century~
  - Smart system by AI and IoT technology support living.

Source: Keidanren (Japan Business federation)
“Society 5.0” is the concept that Japan proposed. It was initially proposed by Keidanren (Japan Business Federation) and incorporated in the 5th Science and Technology Basic Plan in Japan as a concept for the future society to which we should aspire in January 2016.

**Society 5.0**

Society or the relevant approach, through advanced data utilization to connect diversified industries and cultures, to promote multi-sectoral innovations and to establish a symbiotic society of human and natural ecosystems which efficiency facilitates the achievement of Sustainable Development Goals (SDGs) adopted by the United Nations (UN).
The purpose of Society 5.0

- **Economic advancement**
  - The demand for energy is increasing
  - The demand for foodstuffs is increasing
  - Lifespan is becoming longer, and the aging society is advancing
  - International competition is becoming increasingly severe
  - Concentration of wealth and regional inequality are growing

- **Resolution of social problems**
  - Reduction of GHG emissions
  - Increased production and reduced loss of foodstuffs
  - Mitigation of costs associated with the aging society
  - Promotion of sustainable industrialization
  - Redistribution of wealth, and correction of regional inequality

Incorporating new technologies such as IoT, robotics, AI, and big data in all industries and social activities, provide goods and services that granularly address manifold latent needs without disparity

*to balance economic advancement with the resolution of social problems*

Source: Cabinet Office Japan
Society 5.0 and SDGs

Society 5.0 efficiency facilitates the achievement of SDGs.

Source: Keidanren (Japan Business federation)
Society 5.0 and SDGs

Society 4.0
Information society
- Individual optimization through application of ICT
- Efficient use of natural resources
- World bound by various constraints (temporal, spatial, etc.)
- Seeking solutions to individual problems
  Making individual industries more efficient

Society 5.0
Super-smart society
- Optimizing society as a whole through integration of cyberspace and physical space
- Use of new resources (data)
- World released from various constraints

Sustainable Development Goals
17 goals to transform our world

Source: Keidanren (Japan Business federation)
Society 5.0 as an Ecosystem

Sustainable Society

Principles and high level guidance

Contribution to SDGs

The Principle and Guidance as a Catalyst which facilitates Cross-sectoral Innovation by Sharing and Trading of Service and Information

Management Rule

Autonomous Driving

Management Rule

Construction Disaster Mgm

Management Rule

Agriculture

Management Rule

Manufacture

Management Rule

Health/Medical
Standardization of Society 5.0

**Feature**

We incorporate advanced technology in all industries and social life. Everyone (inclusive) can live a comfortable, irrepressible and high-quality life by creation of new value from innovation.

Realization of human-centered society “Society 5.0” leads to achievement of Sustainable Development Goals (SDGs).

**Main issue**

Advanced data utilization is typically represented by the use of such technologies as Internet of things (IoT), Big Data and AI.

**Title**

Principles and general requirements for integrating responsible data utilization contributing sustainable societies - Society 5.0

**Principles**

- Inclusivity
- Sustainability
- Human-centered
- Innovation
- Governance
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>Feb. 2018</td>
<td>Private-sector led informal group was formed and approached to CSTI<em>1 of COJ</em>2.</td>
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<tr>
<td>Mar. 2018</td>
<td>Society 5.0 standardization Task Force was held by COJ and the standardization was discussed. The TF concluded that formal organization on standardization should be established.</td>
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<tr>
<td>Oct. 2018</td>
<td>Establishment of Society 5.0 standardization promotion committee supported by METI*3</td>
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<tr>
<td>Mar. 2019</td>
<td>Approval of JIS*4 preliminary draft in the committee</td>
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*1 Council for Science, Technology and Innovation  
*2 Cabinet Office Japan  
*3 Ministry of Economy, Trade and Industry  
*4 Japanese Industrial Standards
Medium-term objective

Consideration of definition, principle, reference model and standardization of each application area those are the basis of “Society 5.0”.

International proposal to ISO etc. is assumed in promotion of standardization

Immediate action

- Drawing out of JIS preliminary draft on “Society 5.0”
  * Premise of international standard proposal
- Drafting guideline of international activities in future on international standardization including international proposal of JIS preliminary draft
- Research on “Society 5.0” in and out of Japan
# Society 5.0 standardization promotion committee

**Chair:** Dr. Masahide OKAMOTO, Hitachi Ltd.

**Secretariat:** Nomura Research Institute (NRI)

**Support:** Ministry of Economy, Trade and Industry (METI)

## Member

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<tr>
<th>Private sector</th>
<th>Academia</th>
<th>Government agency</th>
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<tr>
<td>Keidanren*¹</td>
<td>Keio University</td>
<td>NEDO*⁵</td>
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<td>Tokyo Electric Power</td>
<td>University of Tokyo</td>
<td>JSA*⁶</td>
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<td>Japan East Railway</td>
<td>Tama University</td>
<td>METI</td>
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<td>DTA*²</td>
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<td>Mitsubishi Heavy Industries</td>
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<tr>
<td>JEMA*³</td>
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<td>JEITA*⁴</td>
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*¹ Japan Business Federation  
*² Data Trading Alliance  
*³ Japan Electrical Manufacturers’ Association  
*⁴ Japan Electronics and Information Technology Industries Association  
*⁵ New Energy and Industrial Technology Development Organization  
*⁶ Japanese Standards Association
Title

Principles and general requirements for integrating responsible data utilization contributing sustainable societies - Society 5.0

Introduction

1. Scope

   This document provides and specifies requirements for the responsible use of data and related technologies to contribute to achieving societies.

2. Normative reference

3. Terms and Definitions

   Society 5.0, SDGs, sustainability, sustainable development, sustainable society, interoperability, AI, IoT, Big data, cyber-physical-system (CPS), responsible data utilization, cross-sectoral
4. Overview
- Review of relevant initiatives, regulations and standards
- Possible users and their benefits

5. Principles
  General
  - Inclusivity
  - Sustainability
  - Human-centered
  - Innovation
  - Governance

6. General requirements
  General
  - Requirements for organizations
  - Requirements for products and services

Annex A (informative) collaboration and Complementarity Principle
Annex B (informative) Existing standards
Standardization of Society 5.0 – What’s next?

We need collaboration of Indonesia in ISO world

Generic High-level Standard

Specific Business Level Standard
Summary

1) Realization of Society 5.0 leads to achievement of Sustainable Development Goals (SDGs)

2) “Responsible data utilization” was proposed as main issue or original matter of Society 5.0 to be standardized.

3) Inclusivity, Sustainability, Human-centered, Innovation and Governance were proposed as principles of Society 5.0 to be standardized.

4) JIS preliminary draft on “Society 5.0” has just been completed.

5) International standardization (in ISO etc.) of “Society 5.0” is planned as a next step, first; Generic high-level standard, second; Specific business level standard.
Thank you very much.