

JEITA

Toward Social Implementation of Artificial Intelligence (AI) to Realize SDGs and Society 5.0

**RECOMMENDATION BY THE TECHNOLOGY
STRATEGY BOARD, JEITA**

MAY 31, 2018

**The Technology Strategy Board
Japan Electronics and Information Technology
Industries Association (JEITA)**

Toward Social Implementation of Artificial Intelligence to Realize SDGs and Society 5.0

Recommendation by the Technology Strategy Board, JEITA

May 31, 2018

Japan Electronics and Information Technology Industries Association (JEITA)

Introduction

The use of artificial intelligence technology (hereinafter "AI") is becoming increasingly widespread in society. It is expected that the use of AI will increase further in our daily lives as well as in industrial and social infrastructure as we move toward realizing the United Nations' Sustainable Development Goals, or SDGs, and Society 5.0, the Super Smart Society that Japan envisions. In this report, JEITA identifies points which need to be appropriately understood in order to achieve the social implementation of AI, and matters which should be considered and addressed from now on.

I. AI exists for the sake of society so therefore it should be actively used

The use of AI is already becoming widespread in various societal scenes. In the field of healthcare, AI is used to assist diagnosis. It is also already being practically applied to assist autonomous driving. It is expected that the next stage will further advance AI's autonomous learning function and multiple AI systems will be interconnected through a network enabling the sharing of knowhow and adjustment of behavior, and as a result, various merits, such as improved work efficiency, burden-free mobility, and advanced medical care, will be provided. JEITA believes that as AI is an effective means to help resolve societal challenges, it should be used to further enrich peoples' lives.

II. Importance of wide and accurate understanding of AI by the general public

As the scope of applications for AI is wide, discussions are being held on various AI systems, from specific-purpose systems to general-purpose ones, at various forums. In addition to promoting efforts to widely raise awareness that AI, although it is not perfect, is constantly evolving, it is important to correctly understand both the benefits and risks that may be brought by AI to users, and to ensure that this discussion involves all stakeholders, including not only AI technology providers (manufacturers, developers and service providers) but also users, in order to share

the challenges. JEITA intends to actively promote necessary actions and activities to foster understanding and improve the social acceptance of AI.

III. Necessity to create social systems for practical use of AI

Before Society 5.0, various systems were created in society in line with technological advances. As a result of progress in AI technology, the capabilities of AI are about to surpass those of human beings in some fields. AI systems that learn autonomously are expected to bring favorable results. On the other hand, it is possible that the results brought by judgments made by AI products after being launched in the market will bring disadvantages (inconveniences) unexpected or unintended by users. If the use of AI is to disseminate, one challenge will be to develop a legal system that can provide a safety net as necessary based on an understanding of the risks and hazards. JEITA believes that providing products and services making practical use of AI is not the end of an AI provider's responsibility but that it is necessary to make efforts to improve safety during the usage process and to provide systems to record and monitor unnatural behavior.

IV. International cooperation to promote the societal implementation of AI

Although the use of AI extends across national borders, there is intense international competition in AI research and development. In order to realize the early societal implementation of AI, JEITA calls for the development of an internationally compatible domestic legal system to be promoted in light of the status of development of legal systems abroad, so that industries can contribute to further enriching peoples' lives and realizing a sustainable society by conducting research and development in an advanced environment in the field of AI.

V. Need for a broad perspective in HR development in the era of AI

Companies are facing an acute shortage of AI-related human resources. Currently, in international competition for human resources, Japan is unable to provide competitive employment benefits compared to hotspots overseas. Meanwhile, there is a mismatch between the skillsets of engineers with years of experience in the corporate research environment and the skills required within individual companies. JEITA recommends that industry, academia and government work together to increase Japan's presence in the field of AI by promoting the development of human resources involved in research, development and advanced applications of AI, as well as work towards the establishment of an environment that enables competent

human resources to exercise their capabilities in Japan. Furthermore, JEITA recommends that re-learning opportunities be provided to increase motivation as well as skills so that motivated workers will seek to acquire the necessary skillsets for data science and AI.

Conclusion

JEITA intends to submit these recommendations to the government to develop the necessary legal framework and environment to promote the societal implementation of AI that enriches the lives of people in society. At the same time, as an organization representing electronics and IT industries providing AI technologies, JEITA will contribute to the creation of industries that contribute to a sustainable society by promoting necessary actions and activities.

【Attachment to the recommendation】

Toward Social Implementation of Artificial Intelligence to Realize SDGs and Society 5.0

RECOMMENDATION BY THE TECHNOLOGY STRATEGY BOARD, JEITA

MAY 31, 2018

JAPAN ELECTRONICS AND INFORMATION TECHNOLOGY INDUSTRIES ASSOCIATION (JEITA)

Introduction

The use of artificial intelligence technology (hereinafter "AI") is becoming increasingly widespread in society. It is expected that the use of AI will increase further in our daily lives as well as in industrial and social infrastructure as we move toward realizing the United Nations' Sustainable Development Goals, or SDGs, and Society 5.0, the Super Smart Society that Japan envisions. In this report, JEITA identifies points which need to be appropriately understood in order to achieve the social implementation of AI, and matters which should be considered and addressed from now on.

Social change through AI – Realizing the SDGs and Society 5.0-

- Realizing the SDGs and Society 5.0 through AI
- Resolving social challenges in Japan, which is tackling various challenges ahead of other countries(*)
 - A population decline and the aging of society coupled with a low birth rate
 - Increasing healthcare and nursing care expenditures
 - The need for regional economic revitalization
 - Energy constraints

(*) Science and Technology Basic Plan (extract from the cabinet decision on January 22, 2016)

Arrival of AI provides a golden opportunity to make people and society happy

Recommendation I.

AI exists for the sake of society so therefore it should be actively used

The use of AI is already becoming widespread in various societal scenes. In the field of healthcare, AI is used to assist diagnosis. It is also already being practically applied to assist autonomous driving. It is expected that the next stage will further advance AI's autonomous learning function and multiple AI systems will be interconnected through a network enabling the sharing of knowhow and adjustment of behavior, and as a result, various merits, such as improved work efficiency, burden-free mobility, and advanced medical care, will be provided. JEITA believes that as AI is an effective means to help resolve societal challenges, it should be used to further enrich peoples' lives.

For what purposes should AI be used?

- ▶ AI should be used to bring happiness and sustainability to human society.
- ▶ AI should not be used to cause “unhappiness” or “destruction” to human society.
- ▶ AI is a technology that serves the people.

AI brings “comfort” and “liberation from inconvenience and constraints.”

Recommendation II.

Importance of wide and accurate understanding of AI by the general public

As the scope of applications for AI is wide, discussions are being held on various AI systems, from specific-purpose systems to general-purpose ones, at various forums. In addition to promoting efforts to widely raise awareness that AI, although it is not perfect, is constantly evolving, it is important to correctly understand both the benefits and risks that may be brought by AI to users, and to ensure that this discussion involves all stakeholders, including not only AI technology providers (manufacturers, developers and service providers) but also users, in order to share the challenges. JEITA intends to actively promote necessary actions and activities to foster understanding and improve the social acceptance of AI.

AI is a new tool.

Elements necessary for making full use of AI as a new tool are “rules,” “instruments,” and “education.”

- “Rules”: a legal system and social conventions related to AI
- “Instruments”: An environment and instruments necessary for making effective use of AI
- “Education”: Education of people who oversee AI learning processes and users of AI

Recommendation III.

Necessity to create social systems for practical use of AI

Before Society 5.0, various systems were created in society in line with technological advances. As a result of progress in AI technology, the capabilities of AI are about to surpass those of human beings in some fields. AI systems that learn autonomously are expected to bring favorable results. On the other hand, it is possible that the results brought by judgments made by AI products after being launched in the market will bring disadvantages (inconveniences) unexpected or unintended by users. If the use of AI is to disseminate, one challenge will be to develop a legal system that can provide a safety net as necessary based on an understanding of the risks and hazards. JEITA believes that providing products and services making practical use of AI is not the end of an AI provider's responsibility but that it is necessary to make efforts to improve safety during the usage process and to provide systems to record and monitor unnatural behavior.

Matters for future discussion

Typical challenges for the development of institutional systems for social implementation of AI

- Revision of existing rules and development of new rules, including on operation and usage of AI systems, and new specifications
- Provision of opportunities for demonstration and evaluation
- Introduction of mechanisms and systems to record AI behavior and the results of its learning, negotiation and coordination processes
- Distribution of data for the purpose of utilization of personal data
- Improvement of the data utilization environment
- Promotion of a shift to open data

Matters for future discussion

Typical challenges for the development of legal systems for social implementation of AI

- **Contract**
Whether AI should be regarded as an entity with legal personhood
Whether contract rules applicable to human-to-human contracts
should be applied to contracts with AI
- **Civil liabilities**
Damage compensation and insurance systems, and the definition of
the scope of liabilities of providers and users
- **Criminal liabilities**
Definition of the scope of liabilities of providers and users, the presence
or absence of negligence, and liabilities concerning illicit use of AI
- **Intellectual properties**
/intellectual property rights
Creations of AI, distribution of data, and protection of intellectual property
included in data
- **Protection of personal
information**
Personal identification, and handling of data on international
transactions
- **Administration and laws**
Permission, approval, registration and supervision; Anti-monopoly Act;
and the demonstration environment

Recommendation IV.

International cooperation to promote the societal implementation of AI

Although the use of AI extends across national borders, there is intense international competition in AI research and development. In order to realize the early societal implementation of AI, JEITA calls for the development of an internationally compatible domestic legal system to be promoted in light of the status of development of legal systems abroad, so that industries can contribute to further enriching peoples' lives and realizing a sustainable society by conducting research and development in an advanced environment in the field of AI.

Recommendation V.

Need for a broad perspective in HR development in the era of AI

Companies are facing an acute shortage of AI-related human resources. Currently, in international competition for human resources, Japan is unable to provide competitive employment benefits compared to hotspots overseas. Meanwhile, there is a mismatch between the skillsets of engineers with years of experience in the corporate research environment and the skills required within individual companies.

JEITA recommends that industry, academia and government work together to increase Japan's presence in the field of AI by promoting the development of human resources involved in research, development and advanced applications of AI, as well as work towards the establishment of an environment that enables competent human resources to exercise their capabilities in Japan. Furthermore, JEITA recommends that re-learning opportunities be provided to increase motivation as well as skills so that motivated workers will seek to acquire the necessary skillsets for data science and AI.

Human resource development in the era of AI

Recognized challenges

- A decline in the presence of engineers and researchers in science fields
- A shortage in the absolute number of students in science fields
- A shortage of human resources with skills necessary to use AI

Necessary activities

- Increasing the presence of engineers and researchers in science fields
- Educating young generations and fostering AI literacy
- Promoting education of and re-learning by current working generations
- Promoting education of working people on the assumption of usage of AI in all types of jobs

Matters to be considered with respect to future actions and activities by JEITA

- Considering activities to foster understanding
 - Creating an AI technical tutorial through cooperation with other committees of JEITA
 - Holding user-participation seminars and discussion meetings concerning AI technology
- Considering activities to develop social systems
 - Establishing a forum for discussions on challenges that must be overcome in order to achieve social implementation of AI (symposium)
 - Activities to develop human resources
 - Creating education programs through cooperation between industry, academia and government
 - Holding an AI technical seminar for re-learning: “AI for All Types of Job”

Conclusion

JEITA intends to submit these recommendations to the government to develop the necessary legal framework and environment to promote the societal implementation of AI that enriches the lives of people in society. At the same time, as an organization representing electronics and IT industries providing AI technologies, JEITA will contribute to the creation of industries that contribute to a sustainable society by promoting necessary actions and activities.

JEITA

**Japan Electronics and Information Technology
Industries Association (JEITA)**

**Ote Center Bldg.
1-1-3, Otemachi, Chiyoda-ku, Tokyo
100-0004 Japan
<https://www.jeita.or.jp/english/>**