

Tentative
Translation

Report 2020 (Outline)

Toward “the safe, secure, and trustworthy implementation of AI in society”

21 July 2020

The Conference toward AI Network Society

Introduction

Chapter 1 Recent trends in AI networking

1. AI and COVID-19 control measures
2. Trends of discussions in Japan, overseas and international organizations

Chapter 2 Prospect of an Ecosystem Formed with the Progress of AI Networking

Chapter 3 Initiatives in developers/AI service providers

Chapter 4 Initiatives in business users

Chapter 5 Initiatives for consumer users

Chapter 6 Initiatives for security

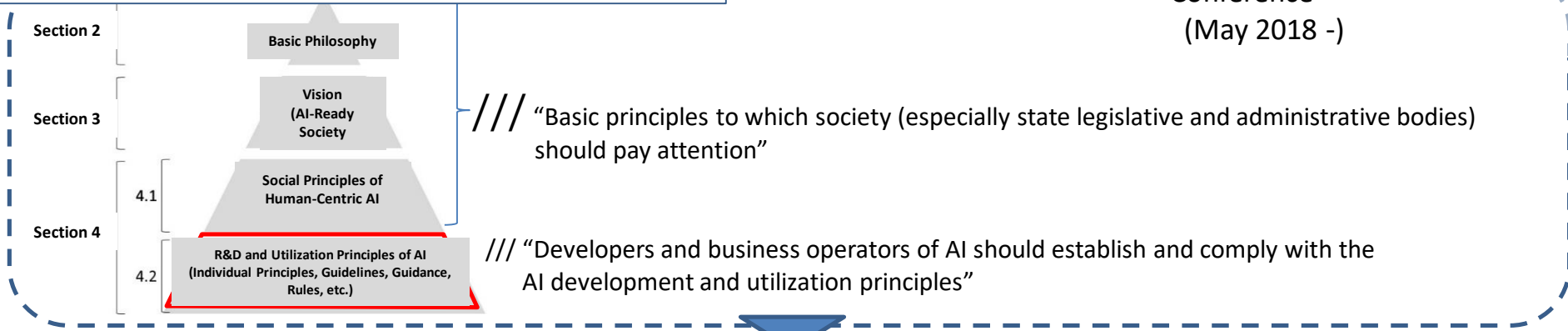
Chapter 7 Initiatives related to insurance

Conclusion

Introduction — Relationship between “Social Principles of Human-centric AI”, “AI Development Guidelines” and “AI Utilization Guidelines”

“Social Principles of Human-centric AI” (Excerpt from the decision in Council for Integrated Innovation Strategy in March, 2019)

Social Principles of Human-centric AI Conference (May 2018 -)



Each developer or business operator is encouraged to establish AI development and utilization principles.

Practical guidance to be referred to is needed.

Initiatives of the Ministry of Internal Affairs and Communications (MIC)

The Conference toward AI Network Society (February 2016 -)

AI Development Guidelines*
Matters to be noted by developers and explanation

AI Utilization Guidelines
Matters to be notes by enterprises and explanation

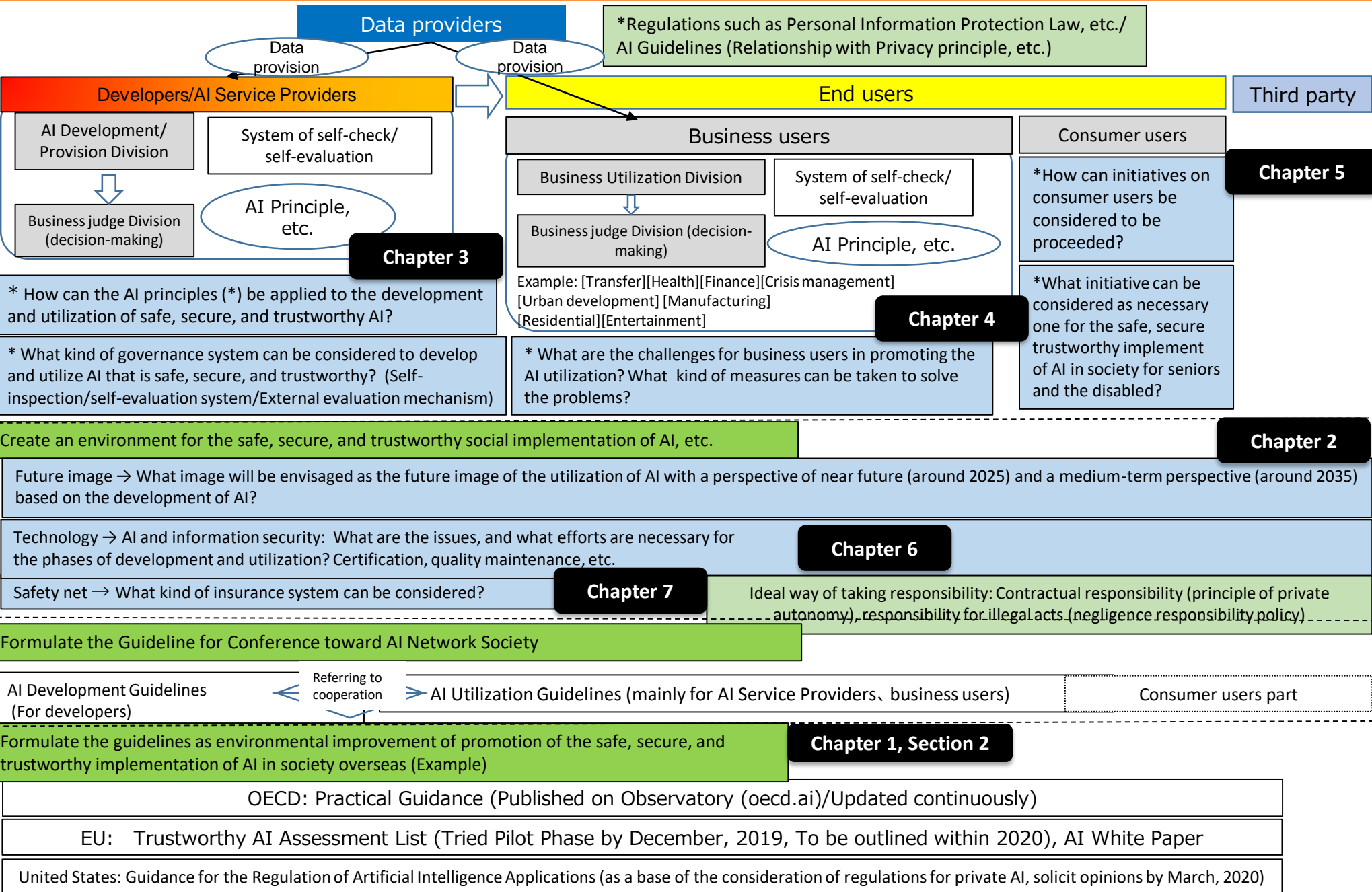
Jul. 2017 Outline

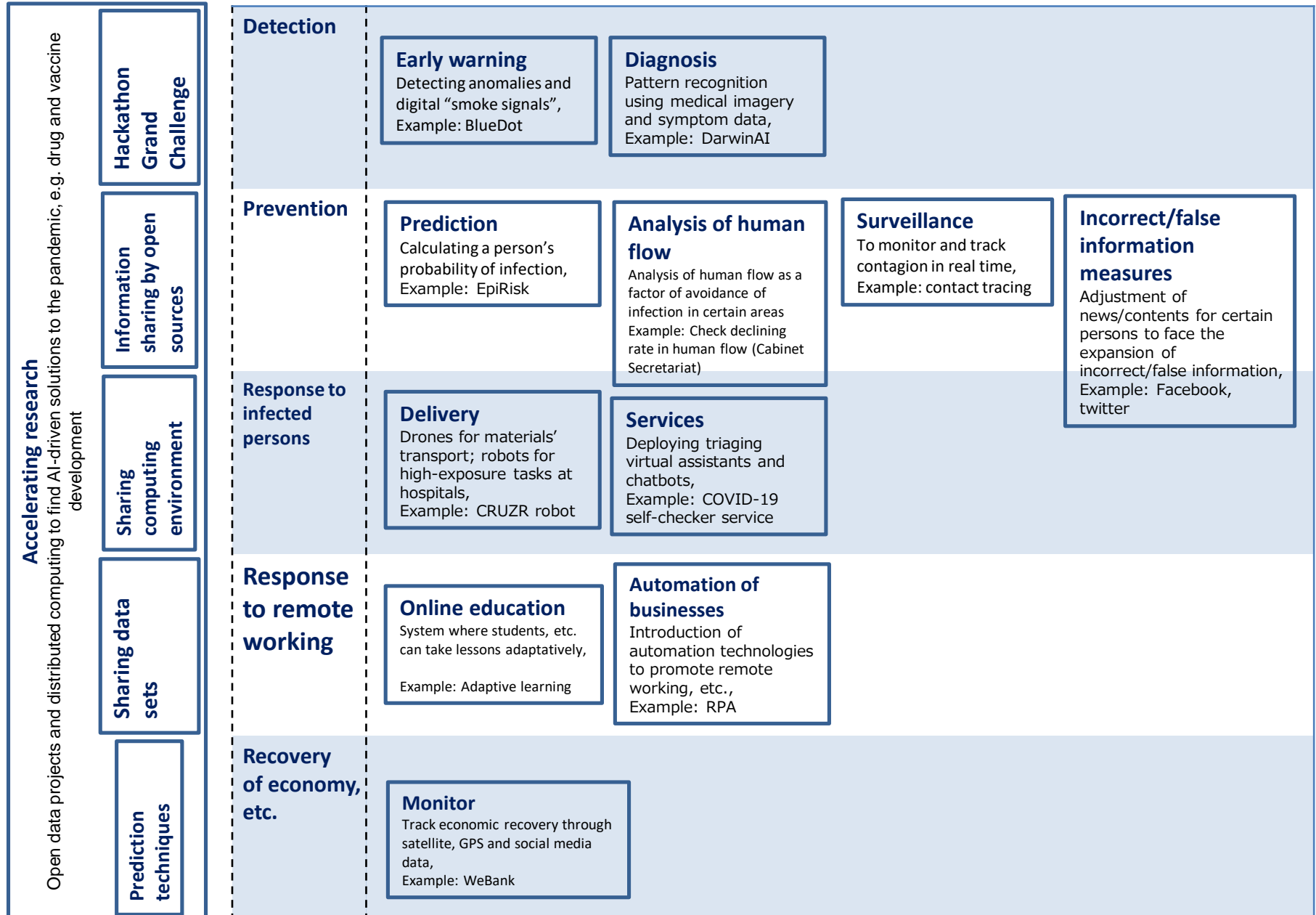
Aug. 2019 Outline

*It refers to "AI Development Guidelines draft for International Discussion".

Contribution to global discussion (OECD, etc.)

Going forward, we will consider society models to be aimed, and accelerate the implementation of AI in society





Publication of AI White Paper

- On February 19, 2020, European Commission published the “White Paper on AI” to form digital future in Europe.
- European Commission presented the framework for the utilization of AI based on excellence and trust of AI. It announced it would release public comments on the drafts by May 19, 2020(*).
- From the perspective of excellence, it expressed it would form the incentive to accelerate the development of AI at SMEs, etc. by mobilizing resources in the entire value chains. (building AI test centers, etc.).
- From the perspective of trust, it showed an ideal way of future regulations depending on the level of risks by clarifying the scope of high risk areas/uses so that people can cope with the AI systems with high risks without giving excessive risks to low risk systems. In addition, it referred to continuing the application of strict EU regulations to protect personal data and privacy, coping with protecting consumers and unfair business practices.
 - For specific uses in healthcare, transportation, public divisions, etc. that are considered to have high risks, it is necessary to consider the conditions, etc. described in the EU’s Ethics Guidelines for Trustworthy AI that suggest AI systems are clear and trackable and guarantee human surveillance. (also, training to function appropriately, non-biased data usage, etc.).
 - Today, the use of facial recognition for remote biometric authentication is generally prohibited, excluding specific conditions. Currently, facial recognition can be used only when it’s exceptionally justified based on the EU or national law, but they started discussing this broadly.
 - Even in the AI system with low risks, they considered an arbitrary labeling scheme (a system of certification) by objective benchmarks in EU to build and maintain trust.

*European Commission postponed the deadline to June 14, 2020 (midnight in Brussels).

Formulation of Practical Guidance and establishment of Observatory on AI policies and experts' meetings

- Practical Guidance: It's a guidance on implementing the OECD AI Principles at the working-level recommended by the OECD Council. Specific explanations on principles etc., the response required for AI developers/operators, government officials, and practical examples of countries are described in the guidance. It reflected the contents of the AI Utilization Guidelines. The first edition was published in February, 2020. The guidance is scheduled to be updated continuously.
- Observatory on AI policies: It's the platform (live-type database <https://oecd.ai>) to promote the information sharing of initiatives on AI, and it started the operation in February, 2020. AI strategies of countries, sharing of policies, comparative analysis of policies, etc. are possible. In addition, regarding this observatory, the network of experts who give political, technical, and commercial advice on this observatory (ONE AI: OECD Network of Experts on AI) was established. (Mr. SUDO, the chair of this Conference participated in the observatory as the representative of Japan.)

Observatory's 4 Pillars

- ① **AI Principles:** OECD's AI principles and guidance at the working-level (Practical Guidance) are described.
- ② **Policy areas:** Accessible to various contents such as AI policy news and published contents on AI survey by public policy field
- ③ **Trends & data:** Survey data on AI are posted. You can see regional comparison and temporal change of data here.
- ④ **Countries & initiatives:** It's the database of national strategies, policies, and initiatives on AI, and various AI policies can be shared and compared by country.



Image: AI Principles of OECD



Image: Comparison of initiatives on AI policies by country

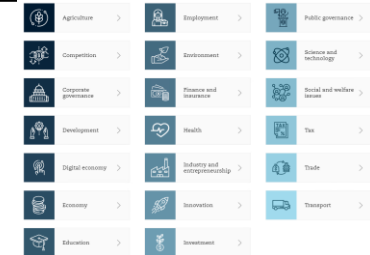
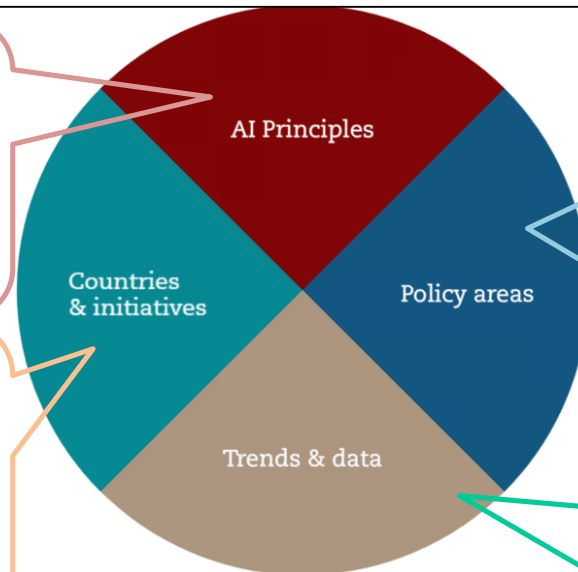


Image: Dashboards (Organize the contents by policy field)

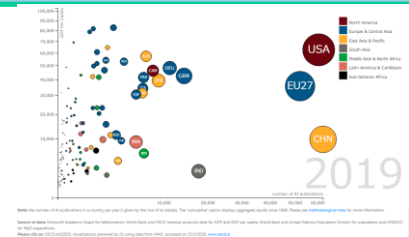
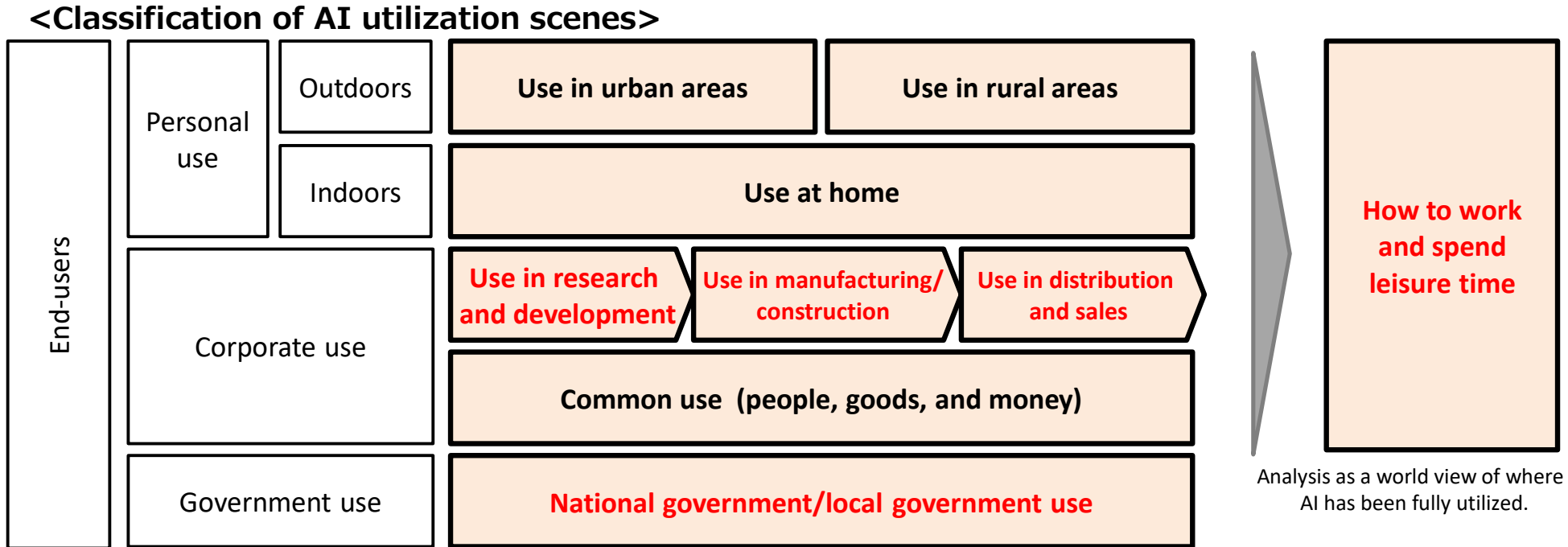


Image: The number of publications on AI and GDP

1) Focusing on the AI utilization and **looking at the scene of the AI utilization** in terms of both consumers and businesses. In the perspective of AI utilization, the utilization scenes are classified as follows:



(Prepared based on Attachment 2 "Perspective of Ecosystem Formed with Progress of AI Network" of the Conference toward AI Network Society 2018 Report. The red letters are the parts added to 2018 Report.)

2) [Attachment 3-2] Based on the the above mentioned 1) AI utilization scenes, case studies on implementation of AI in society were conducted, and the benefits and issues were pointed out.

Case: Transfer (fully autonomous driving)

Case: Health (medical care/nursing)

Case: Finance

Case: Crisis management (crime prevention, public infrastructure, and disaster prevention))

Case: Manufacturing

Case: Residential

Case: Energy

■ The starting point of discussion

- Initiatives for formulating AI principles etc. have proceeded, but they have not spread enough.
- In terms of promoting formulating AI principles etc. for developers etc., how can formulating AI principles etc. and the significance of it be utilized for the safe, secure, and trustworthy development/ utilization of AI?
- What kind of governance system (the system of self-check/self evaluation/the system of external evaluation), including the operation of AI principles etc. can be considered as the requirement for the safe, secure, and trustworthy development of AI, etc.?
- We had an interview with the following persons who have been actively working, and discussed, focusing on the above issues.

■ Interviews

- ABEJA, Inc. ("Ethical Approach to AI, Initiatives in (EAA)")
- FUJITSU LIMITED ("AI governance in AI developers")
- IBM Japan ("IBM's initiatives on AI")
- NTT DATA Corporation ("NTT DATA Group's initiatives for AI governance")
- Oki Electric Industry Co., Ltd. ("Improvement of Foundations for the implementation of AI" – "Establishment of OKI Group's AI Principles")
- Microsoft Corporation ("Business and responsibility, The issues and initiatives of AI – The possibility of ethics and AI")
- Anonymous ("The report on the support tools for the utilization of AI by volunteers of a private enterprise")

■ Overview

(1) Significance of formulating AI principles

- Formulating AI principles itself isn't directly connected with the profits of enterprises, but it represents the basic policy toward the development of AI, etc. as a company, and for stakeholders of the company, it's connected with building trust toward the development of AI, reducing the concerns about the development of AI. Future initiatives are as follows.
- a. **Follow and disseminate/promote initiatives for formulating AI principles in enterprises**
 - It's necessary to continuously disseminate and publicize the significance of formulating/utilizing these AI principles as well as collect cases from the perspective of useful initiatives through the interview, etc. in this conference, though the initiatives for formulating AI principles etc. have not spread enough. At the same time, it is also important to continuously disseminate the "Draft AI R&D Guidelines" and the "AI Utilization Guidelines" to contribute to serving as a reference of formulating AI principles etc.
- b. **Follow the trend of global discussion on formulating AI principles**
 - It's necessary for this conference to continuously follow the trend of overseas and global discussion and provide information. In addition, it's also necessary to disseminate Japan's current situation of initiatives to international organizations such as OECD to follow the trend of global discussion.

(2) The utilization of AI principles etc. in the development/utilization of AI

- AI principles etc. not only represent a corporate philosophy of the development/utilization of AI, but also fulfill specific functions by using as the guidelines for actual development/utilization of AI. Future initiatives are as follows.
- a. **Collect and disseminate/promote specific utilization cases in enterprises**
 - Learning how AI principles are utilized in actual AI development cases is useful information for enterprises considering formulating AI principles etc. Going forward, it is significant to share these kinds of information and make them available for reference in terms of supporting business judgement in AI development/utilization. Therefore, it is necessary to promote disseminating/sharing information as well as collect cases continuously through interviews in this conference.
- b. **Research checklists, etc. as a specific diagnostic tool**
 - Formulating checklists, etc. based on AI principles etc. is significant in utilizing AI principles etc. for actual AI development/utilization from the perspective of securing objectivity/integrity/verifiability of the judging methods of the development/utilization of AI. On the other hand, EU formulated an assessment list and tried it, and they are working on initiatives for revising it based on the trial results around summer in 2020. Therefore, it is useful for this conference to continuously follow overseas trends, collect cases of formulating checklists in Japan, and research checklists, etc. as a specific diagnostic tool.

■ Overview (Continued)

(3) The governance system required for safe, secure, and trustworthy development of AI

- Having the governance (system) is required to secure the implementation of AI principles etc. as well as formulate AI principles etc. There were some devised initiatives such as establishing a committee composed of external diversified human resources in a company as a self-check/self evaluation system in a governance system. Regarding the governance, how it can be secured and to what extent it has an influence, various forms are considered to be available. Future initiatives are as follows.
 - a. Collect/promote examples of efforts of self-check/self evaluation**
 - It is necessary to collect cases of initiatives as references for “the governance for the implementation of AI principles” in this conference to promote the dissemination of initiatives for self-check/self evaluation. In addition, it is expected that some enterprises, especially start-ups might hesitate to go for these initiatives from the perspective of priority levels of internal resources, etc. Therefore, it is useful to implement opinion exchange meetings with start-ups through cooperating with concerned organizations, etc.
 - b. Consider external audit**
 - Regarding external audit, any initiatives for implementation of AI haven’t been seen yet. It is needed to promote consideration by continuously having an interview on ideal external audit with persons concerned in this conference.
 - c. Set public discussion forums to share the contents of implementation of the governance and issues, etc.**
 - As mentioned above, it is also useful to set public discussion forums such as having a national symposium, etc. to share the contents of implementation and issues, while some enterprises (enterprise groups) started to formulate/utilize AI principles etc. and build the governance system in Japan. In addition, it is necessary for this conference to serve as one of the platforms to share the contents of implementation and issues.

(4) Formulate "AI Utilization Best Practice"

- It was pointed out that being understood what significance or merits the utilization of AI has for end users such as enterprises that are business users was necessary as the sense of business scenes. To promote understanding the usefulness of the utilization of AI is the major premise of promoting the implementation of AI in society, so actively promoting the utilization of AI in this conference, having an interview with those who are utilizing AI for the improvement of business management, and formulating the "AI Utilization Best Practice Collection" introducing the usefulness of the utilization of AI clearly.

(5) Others

- Regarding the issues of the "safe, secure, trustworthy implement of AI in society“, they should be solved from the diversified viewpoints, centering on AI ethics as a starting point. As for other issues raised, they should be continuously considered in cooperation with other concerned organizations.

■ The starting point of discussion

- The scope of the utilization of AI can be broadly extended. However, not only AI developers/service providers but also end users who have relatively little expertise have concerns about the ethics of AI.
- For the dissemination and promotion of ICT, not only the development of infrastructure but also the promotion of utilization of AI is important as promoting the utilization has been pointed out as an issue.
- There are various types of business users of AI, but we considered what the issues in promoting the utilization of AI business users are and what initiatives are required to solve the issues by having an interview about cases of actively working on the utilization of AI at the moment and cases of issues in the utilization of AI.

■ Interviews

- Sumitomo Mitsui Financial Group, Inc. ("Initiatives for digitalization in SMBC Group")
- Tokyo Metropolitan Government ("Tokyo Metropolitan Government's ICT related measures")
- Yamaha Corporation ("Yamaha's singing voice synthesis –Initiatives for reviving MISORA Hibari–")
- Anonymous
- Mr. SANBE Hiroyuki, a member of the Conference ("Rikunabi Case Reviewed from the Perspective of AI Utilization")

■ Overview

(1) Support for formulating AI Utilization Principles and guidelines by AI business users

- Follow motivated initiatives for formulating AI principles etc. by AI business users, going forward, and it's necessary to support for formulating the "AI Utilization Guidelines and guidelines by AI business users through disseminating the AI Utilization Guidelines as well as introducing advanced cases.

(2) Organize and accumulate the way of thinking on AI utilization principles through specific cases

- To Organize and accumulate the way of thinking on principles in specific cases will be a reference for judging AI utilization in enterprises, going forward. From this perspective, it's necessary to organize and accumulate specific ways of thinking on principles in specific cases by having an interview on motivated initiatives including the fields that were not included in this interview.

(3) Formulate "AI Utilization Best Practice" (See Chapter 3 (4))

- Formulating AI Utilization Principles etc. and guidelines by AI business users and proceeding initiatives for the utilization of AI are in the parent-child relationship. From this perspective, it's necessary to work on formulating "AI Utilization Best Practice" that can be a reference for initiatives of AI Utilization.

(4) Follow systematic issues required for the utilization of AI

- To provide products/services, utilizing AI, there will be cases that need to organize/consider the relationship with the existing system. To address this institutional issue, it's necessary to continuously follow systematic issues in this conference, by cooperating with the Information and Communication Policy Committee, Special-Interest Group on AI and other related organizations.

(5) Importance of governance in businesses utilizing AI

- There are many laws, ethics, and stakeholders involved in AI businesses and the risks are likely to materialize if companies proceed with AI businesses in the same way as traditional businesses. It will be necessary to establish a governance system to consider legal and ethical issues and stakeholders. It is necessary for the Conference to continue to follow up on and study governance systems for businesses utilizing AI.

(6) Others

- Regarding other issues raised, they should be continuously considered in cooperation with other concerned organizations.

■ The starting point of discussion

- In the AI Utilization Guidelines, matters to be noted for consumer users are described as a reference.
- Going forward, it will be necessary to take initiatives so that consumer users can safely utilize AI and enjoy the benefit. 2019 Report referred to that like this; “It’s important to send message that consumer users can easily understand, so it’s desirable to prepare literacy materials (user guidebooks) such as a “handbook“ and an “instruction manual” (users’ manual) based on the description on the AI Utilization Guidelines, etc., and consider having a workshop based on them.”
- In addition, to make everyone achieve self-fulfillment is one of the most important initiatives for realizing the human-centered AI society. Especially the elderly/disabled among consumer users can eliminate the inconvenience due to the age and disability by utilizing AI, and everyone can equally achieve self-fulfillment.

■ Interviews, etc.

- Consumer Affairs Agency
- KONDO Noriko, a member (“Interim report of the survey of smart speakers”)
- WAKAMIYA Masako (“Report of the status of utilization of AI speakers at my home and the results of a questionnaire on AI speakers (Interim report)”)
- TAMARU Kenzaburo, a member

■ Overview

(1) Initiatives in consumer users: Cooperation with Consumer Affairs Agency

- Consumer Affairs Agency is considering preparing the handbook for consumer users. We will follow the movement, and cooperate with them for promotion.

(2) Initiatives on the elderly/disabled

① Cooperation for dissemination activities of utilization methods of AI speakers, etc.

- The use of AI speakers, etc. is an option of individuals, but disseminating how to utilize them, etc. is necessary. It’s useful for the Conference toward the AI Network Society to cooperate with organizations working on the dissemination activities.

② Promote disseminating advanced examples of efforts, etc.

- It’s necessary to work on disseminating information as well as collecting information on advanced examples of efforts through having interviews, etc.

■ The starting point of discussion

- As part of the environmental improvement for safe, secure, and trustworthy AI, considering measures in a technical aspect is considered to be necessary. For example, there are various initiatives such as securing quality, improvement of explainability, authentication, and securing the security.
- When focusing on securing the security, “Security Principles” are explicitly presented in AI Development/Utilization Guidelines, but the security for protecting AI users should be focused on for promotion of the development and utilization of AI and sound development of AI working. When we reconsider the relationship between AI and security (hereinafter referred to as "AI × security"), the following 4 perspectives can be listed, and the perspective (c) should be focused:
 - (a) Attacks using AI
 - (b) Attacks by AI
 - (c) Attacks to AI
 - (d) Measures using AI

It's important for this conference to dig deep into the perspective (c), but there is an opinion that “digging deep into each one is important, but combining these would deepen the study”, so considering other perspectives is important.

■ Interview

- JNSA (Japan Network Security Association) ("AI × Security")

■ Overview

(1) Response to deepening the countermeasures against attack to AI and response to other issues

- To contribute to the practical use of Security Principles etc., it's important to restrict the attacks to AI, considering (c) classification of attacks to AI technically, and strengthen the countermeasures against the attack, seeing who is the attacker.
- In addition, it's also important to promote discussion, considering not only attacks to AI but also other issues related to AI. Especially, it's necessary to take (b) Attacks by AI as one of the risks as AI and AGI that autonomously operate were considered in the consideration of AI development/utilization of AI, though detailed consideration about (b) attacks by AI has not proceeded.

(2) Necessity of identifying the intention in attacks

- Regarding both (c) Attacks to AI and (a) Attacks using AI, since it's hard to see what is incorrect/bad (judge if it's an attack), it's important to learn how to identify the intension.
- Referring to the above, several issues such as the promotion of fact check and improvement of ICT literacy are introduced in the final report of the Platform Service Study Group, MIC, because there are various responses in the way of responding to false information (false information with some intention).

(3) Necessity of interdisciplinary discussion by multi-stakeholders

- It's important to continuously have interdisciplinary discussion by adding expertise from psychology and sociology beyond the discussion by security engineers because there are problems that can't be solved only from the technical side in this field.

■ The starting point of discussion

- As an initiative for promoting "safe, secure, and trustworthy implementation of AI in society" as a safety net, it's important to build an insurance system that aims to cover the damage concerning the development and utilization of AI, considering the characteristics of AI. 2019 Report referred to the necessity of these; "the relief of victims on AI related accidents, etc. (insurances, etc.) and consideration of ideal ways of preventing the occurrence of damage", "consideration of measures not to bring damage to the users, etc. caused by the risks of AI systems, and ideal way to build the system to protect users, etc. and share responsibility when the risks become evident". We had an interview with enterprises working on advanced initiatives on AI related insurances, considering these issues.

■ Interviews

- Tokio Marine & Niichido Fire Insurance Co., Ltd. ("The functions of insurances that support dissemination of AI")
- Sompo Japan Insurance Inc. ("Utilization of Insurance in Smart Factories")

■ Overview

(1) Collect, disseminate and share insurance products on AI and introduction examples

- It's important to develop various types of insurance products for the purpose of cover the damage, etc., considering the characteristics of AI as an initiative for preparing a safety net in the utilization of AI. Therefore, it is necessary for this conference to have an initiative for collecting introduction examples of insurance products, and disseminating/sharing them, as well as following developing insurance products depending on the characteristics of risks of AI.

(2) AI's quality assurance and insurance

- It's important to promote the spread of AI by securing the quality of AI, and from the perspective of quality control, the approach of quality assurance liability insurances combined with the governance by auditing organizations that evaluate the quality and quality evaluation standards on AI is effective measures. Since the quality evaluation on AI is different depending on the purpose of AI and business type, and the auditing methods for quality evaluation and feasibility are also different, it's necessary to continuously consider the quality control on AI and AI related insurances, following the consideration from the viewpoint of experts on the quality control on AI and AI related insurances.
- It is considered to be difficult to decide where responsibility lies and sharing of responsibility just by using the existing laws and regulations in considering the insurances on AI. When considering these civil law related issues concerning the locus and sharing of responsibility and legal issues that arise in the development of new insurance products, it's necessary to continuously consider legal issues on AI related insurances, following the consideration from the viewpoint of experts on legal issues of AI related insurances.

- This report would like to emphasize that it was outlined based on interviews on individual, specific and motivated initiatives, etc. and unfettered discussion. We are deeply grateful for those who cooperated with us for interviews and discussion.
- So far, "2017 Report" was outlined focusing on AI development guidelines, and "2018 Report" was outlined focusing on AI utilization principles drafts, then "2019 Report" was outlined focusing on AI utilization guidelines based on AI utilization principles drafts. This report has characteristics quite different from the previous ones'. That's because it has the background that the discussion phase on the development/utilization of AI has changed to how to develop the implementation of AI in society as well as formulating principles. In overseas and global discussion, the movement to promote the implementation of AI in society has been active as mentioned in the beginning of operation at the observatory in OECD (a platform to promote sharing information on AI) introduced as the trends of discussion in overseas and global discussion in Chapter 1.
- In addition, this report would not call a halt for the moment just by formulating principles and guidelines. It's necessary to continuously have interviews on motivated initiatives, etc. for the safe, secure, and trustworthy implementation of AI in society and unfettered discussion and organize "shared information" in order to promote the implementation of AI in society in Japan, going forward. We hope to have an interview with those who didn't have a chance this time. Also, we hope to have an interview on the development of future initiatives with those who cooperated with us this time.
- In Chapter 11, we had a survey on the current trend of initiatives on AI for COVID-19 measures, and overviewed the trend. Regarding specific initiatives, we will have an interview with persons concerned and discussion.
- To promote the "safe, secure, and trustworthy implementation of AI", it is significant to promote various types of cooperation such as cooperation between organizations/groups to solve social issues, cooperation between developers and users of AI, cooperation between organizations to promote the development and utilization of AI in enterprises, cooperation between various stakeholders in the governance. This conference is a meeting committee structure composed of cooperation between various members. The discussion described in this report was also done in cooperation with those who cooperated with us for the interview. We at this conference would like to continuously promote initiatives for the "safe, secure, and trustworthy implementation of AI in society, focusing on "cooperation" as an important perspective.