

Tentative
Translation

Key Points of 2021 Report (Outline)

Promoting “Safe, Secure, and Trustworthy Implementation of AI in Society”

August 2021

The Conference toward AI Network Society

Initiatives For Promoting “Safe, Secure, and Trustworthy Implementation of AI in Society” (1)

Opinions were exchanged through presentations by business operators who are making advanced or ambitious efforts to implement AI in society. The main issues were:

- What kind of initiatives will developers and users (AI service providers and business users) adopt to promote “safe, secure, and trustworthy implementation of AI in society” or to improve the acceptance of AI in society?
- To promote these efforts, what issues do businesses face, and what should be done to resolve them?
- What kind of environment should be created to encourage acceptance and promote “safe, secure, and trustworthy implementation of AI in society”?

In addition, opinions were exchanged on the use of AI as a countermeasure against COVID-19.

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| ○ Prof. Yasushi Okuno (Kyoto University Graduate School) | : Challenge of developing COVID-19 treatments using the supercomputer “Fugaku” and AI |
| ○ Fujitsu Laboratories Ltd. | : Fujitsu's AI Research Activities in the New Normal |
| ○ Google LLC | : Putting AI Principles into practice |
| ○ National Institute of Information and Communications Technology | : Large-scale natural language processing technology aimed at solving social issues |
| ○ NEC Corporation | : Toward a safe, secure, and trustworthy implementation of AI in society |
| ○ NTT Communications Corporation | : Smart World realized by communication AI |
| ○ Prof. Hidenori Kawamura (Hokkaido University Graduate School) | : Research case study and start-up at the Laboratory of Harmonic Systems Engineering, Hokkaido University |
| ○ Institution for a Global Society Co., Ltd. | : Protection of personal information that accelerates data-based education with fair evaluation by AI. Human resources development and an education platform. |
| ○ Aizuwakamatsu City | : The role of AI in “Smart City Aizuwakamatsu” |
| ○ NTT DATA Corporation | : NTT DATA Group AI Governance Initiatives, 2021 update |
| ○ Oki Electric Industry Co., Ltd. | : AI Risk Management of OKI |
| ○ Sony Group Corporation | : Sony Group's AI Ethics Activities |
| ○ Sumitomo Corporation | : DX Promotion and AI Utilization in the COVID-19 crisis by Sumitomo Corporation |
| ○ LegalForce, Inc. | : Introduction of a contract review and management system using natural language processing |
| ○ Legalscape, Inc. | : Efforts toward organizing legal information into web-like structure |
| ○ Nippon Television Network Corporation | : Introducing the AI utilization case study and AI utilization promotion system of Nippon TV |
| ○ NHK Science & Technology Research Laboratories | : Efforts to develop AI technology at NHK Science & Technology Research Laboratories |
| ○ Toshiba Corporation | : Toshiba's AI Initiatives |
| ○ FUJIFILM Holdings Corporation | : Regarding Fujifilm's AI development and application case studies and establishment of a basic AI policy |
| ○ Japan Post Holdings Co., Ltd. | : Efforts to utilize technology in the postal and logistics fields |
| ○ Stella Place Co., Ltd. | : Development of the AI weather prediction model in high-performance computing and the possibility of its application at the PC level |
| ○ IBM Japan, Ltd. | : IBM Data and AI technologies to support enterprise-wide AI adoption |
| ○ Hitachi, Ltd. | : Efforts toward the realization of an AI network society |

Initiatives For Promoting “Safe, Secure, and Trustworthy Implementation of AI in Society” (2)

Initiatives related to AI Ethics and Governance

Initiatives related to AI ethics and governance by each business operator, etc. are organized in terms of “guidelines and principles,” “organization and structure,” “security,” “privacy,” “fairness,” “transparency and accountability,” “appropriate use,” “quality assurance and development review,” and “cooperation and collaboration with external parties.”

< Key points of the best practices >

	Initiatives being carried out by numerous business operators, etc.	Particularly noteworthy initiatives
Guidelines and principles	<p>Many AI developers and service providers formulate and establish guidelines for AI governance, using human-centered AI social principles, AI development guidelines, AI utilization guidelines*, etc. as a reference.</p> <p>⇒ It is desirable to formulate and establish guidelines, etc. according to the mode of AI utilization and the nature of AI, and to implement and operate them appropriately, while referring to the case studies (motivation, way of thinking, processes, etc.) presented at the hearings.</p>	<p>Establishing a basic policy on the utilization of AI as an AI user.</p>
Organization and structure	<p>Creating internal working groups and specialized teams, forming committees in collaboration with external experts, and establishing internal and cross-group organizations in order to implement and manage AI ethics and governance</p> <p>⇒ It is desirable to establish an organization and system for the appropriate implementation and operation of AI ethics and governance, referring to the case studies presented at the hearings, etc. Case studies on creating systems that allow risk management related to AI to be accepted within companies without resistance by utilizing existing internal regulations and systems as much as possible are also considered helpful in building an organization and structure.</p>	<p>Implementing initiatives that emphasize diversity, such as bringing together external researchers with different cultural backgrounds and incorporating perspectives from psychology and cognitive science</p>
Security Privacy	<p>Implementing initiatives that emphasize security and privacy protection</p> <p>⇒ While referring to the cases presented at the hearings, it is necessary to take appropriate measures to ensure security and privacy protection according to the mode of AI utilization and the nature of AI. From the perspective of privacy protection, it would also be helpful to consider case studies such as creating a mechanism that allows users to select whether to use the service or to select the personal information to be provided after understanding the risks.</p>	<p>Implementing initiatives that utilize new technologies such as secure computation and blockchain</p>
Fairness	<p>Emphasizing the need to ensure fairness, eliminate bias, and implement initiatives to establish a system to check for bias and discrimination in the process of AI development and utilization</p> <p>⇒ Appropriate efforts should be made to ensure fairness and eliminate bias in accordance with the mode of AI utilization and the nature of AI, referring to the examples presented at the hearings.</p>	

* “AI Development Guidelines” and “AI Utilization Guidelines”: “The Draft AI R&D GUIDELINES for International Discussions” (July 2017) and “AI Utilization Guidelines” (August 2019) compiled by the Promotion Council (same as below).

Initiatives For Promoting “Safe, Secure, and Trustworthy Implementation of AI in Society” (3)

Initiatives related to AI Ethics and Governance

< Key points of the best practices > continued

	Initiatives being carried out by numerous business operators, etc.	Particularly noteworthy initiatives
Transparency and accountability	Implementing initiatives that emphasize transparency and accountability	Implementing initiatives to gain understanding and acceptance through dialogue with stakeholders such as users, in addition to technical approaches in the form of “Explainable AI” (XAI) including the use of new technologies
	⇒ While referring to the case studies presented at the hearings, etc., it is necessary to take appropriate measures to ensure transparency and achieve accountability according to the mode of AI utilization and the nature of AI.	
Appropriate use	Positioning AI as a tool that humans can use and implementing the so-called “human in the loop” operation, wherein humans ultimately verify AI judgment and use AI for support, rather than entrusting everything to AI judgement.	
	⇒ “Human in the loop” is closely related to privacy, fairness, transparency, and accountability, and is a crucial perspective when considering the relationship between humans and AI. While referring to the case studies presented at the hearings, it is desirable to appropriately utilize the mechanism to realize the “human in the loop” operation depending on the mode of AI utilization and the nature of AI.	
Quality assurance and development review	Establishing processes and rules for conducting quality assurance and evaluation of AI, including the development of evaluation processes throughout the lifecycle, development of tools such as checklists, and creation of templates for contracts	Efforts to ensure AI ethics and avoid risks from the previous stage of design by formulating development standards, and efforts to continuously operate AI model data and applications while cooperating mutually. Implementing “by design” initiatives for AI ethics and governance by incorporating AI ethics and governance into development methods, etc.
	⇒ It is desirable to promote initiatives to appropriately implement quality assurance and evaluations, referring to the case studies detailed at the hearings with regard to initiatives such as quality assurance.	
Cooperation and collaboration with external parties	Actively cooperating and collaborating with the government, related organizations, external experts and intellectuals, etc., deepening the efforts of business operators, and contributing to the promotion of the social implementation of AI	
	⇒ It is desirable to actively cooperate and collaborate with the outside world, referring to the case studies presented at the hearings, and promote the social implementation of AI by multi-stakeholders.	

Initiatives To Promote “Safe, Secure, and Trustworthy Implementation of AI in Society” (4)

Initiatives related to AI development and utilization

Among the initiatives for AI development and utilization of each business operator, we have organized efforts related to “countermeasures against COVID-19,” “medical and healthcare,” and “the elderly and people with disabilities” as fields that require special attention given that the spread of COVID-19 continues, and that it is important to disseminate information internationally as a country that has faced issues in advance.

< Key points of the best practices >

	Initiatives being carried out by numerous business operators, etc.	Particularly noteworthy initiatives
COVID-19 measures	As AI-based countermeasures against COVID-19, implementing initiatives such as avoiding overcrowded places and close contact, as well as providing chatbot services ⇒ It is desirable to continue to promote initiatives for COVID-19 countermeasures that utilize AI, while referring to the cases presented at the hearings regarding the status of COVID-19 infection spread. In addition, in the new normal, issues such as improving management structure and maintaining supply chains are also expected to be resolved by utilizing AI.	AI-based drug discovery attempts are being implemented, and there are high expectations in terms of shortening the time and cost of drug development.
Medical and healthcare	⇒ It is desirable to promote initiatives to utilize AI in the medical and healthcare fields, referring to the case studies presented at the hearings. Specifically, if COVID-19 infections continue to spread, it is expected that the utilization of AI will promote initiatives to reduce the number of patient visits to hospitals, propose optimal treatments for individuals, reduce the burden on medical facilities, and economize the labour force.	Utilizing AI to support diagnoses by doctors and prevent lifestyle-related diseases
The elderly and people with disabilities	⇒ It is desirable to promote initiatives to use AI to support the elderly and people with disabilities, referring to the cases presented at the hearings.	Implementing initiatives to support the elderly and people with disabilities by utilizing AI in the nursing care and broadcasting fields

Initiatives related to human resource development

As the shortage of human resources related to AI has been pointed out, and as the training and securing of human resources have become an issue, we summarized the initiatives of each business operator regarding human resource training.

< Key points of the best practices >

	Initiatives being carried out by numerous business operators, etc.	Particularly noteworthy initiatives
	Human resource development using e-learning and implementing human resources development after establishing collaboration with universities and dividing the different levels in detail ⇒ Human resource development is an urgent issue, and it is desirable to strongly promote initiatives to develop and secure AI human resources, referring to the examples presented at the hearings.	Initiatives to provide AI literacy education to the outside world have been implemented, and we hope that such initiatives will lead to increased levels of AI literacy for business partners and the industry.

Specific Cases Of Initiatives By Each Business Operator (1)

Initiatives related to AI Ethics and Governance

Note: List the key items

< Guidelines and principles >

- In September 2018, the “Sony Group AI Ethics Guidelines” were released. They defined seven principles with reference to Sony’s Founding Prospectus, Mission/Vision, and the Sony Group Code of Conduct. In March 2019, they were revised to align with Sony’s Purpose & Values. The guidelines consist of positive expressions, rather than expressions of “what not to do.” [Sony Group Corporation]
- The “AI Basic Policy of Fujifilm Group” was established in December 2020. The focus of this policy was to avoid restricting the development and utilization of AI more than necessary. The purpose of utilizing AI is to improve social benefits and solve social issues, and, in this process, the basic stance has been to respond appropriately to problems that may arise. Another purpose is for data providers to read the basic AI policy, rely on and trust the company, and entrust their data with a sense of security. This policy will be reviewed periodically, and the content will be revised to reflect changes. [FUJIFILM Holdings Corporation]
- In February 2021, the “AI Ethical Principles” were formulated, and a white paper was released to the public. Since Hitachi is responsible for building social infrastructures that contribute to the realization of a better society, action standards and practical items unique to Hitachi have been established, including the phases of planning, social implementation, and maintenance management. [Hitachi, Ltd.]

< Organization and structure >

- The diversity of human resources is emphasized, including the fact that the people who provide input are very diverse. This diversity, which includes men and women, is characterized by the gathering of scholars from different cultures. [Google LLC]
- With regard to AI ethics, Fujitsu Laboratories Ltd. works in collaboration with various departments in Fujitsu, such as business units, legal affairs, and human resources. Fujitsu Laboratories Ltd. comprises not only computer science researchers but also social science researchers working on psychology, fieldwork, and cognitive science. It is important to include the perspectives of psychology and cognitive science. [Fujitsu Laboratories Ltd.]
- The AI Liaison Committee was established in August 2020 as a system to promote the utilization of AI. The aim is to create a mechanism for sharing information on the challenges of initiatives throughout the Nippon TV group and to minimize the risk of unnecessary investment. The idea is to freely share AI-related information and enhance company-wide knowledge and share information on AI projects across the Nippon TV group, while also considering the introduction of efficient AI technology by sharing successful and unsuccessful examples. In addition, it is an equal place for creating new initiatives utilizing AI for employees from various workplaces, including production, to gather and share information. [Nippon Television Network Corporation]

< Security and privacy >

- With regard to AI security, with the spread of AI, attacks against AI (such as deceiving AI and stealing AI information) and threats using AI (such as deceiving with AI) are emerged. For example, Fujitsu Research has developed a technology to detect spoofed attacks (that trick AI) with high accuracy by automatically creating training data and using models for each of the characteristics of multiple attacks. [Fujitsu Laboratories Ltd.]
- It is important that data be distributed in a safe and secure manner, and secure calculation techniques are used to ensure that calculations are made in a manner that does not identify individuals. For example, if the data held by a medical institution are encrypted, distributed across servers, and processed using secure calculations, the data can be retained individually. However, as the volume of data used increases, the overall performance also improves, and a new value can be created. In addition, research and development are being conducted on blockchain such that it conveys information reliably. [NEC Corporation]
- Systems can demonstrate the protection of students’ personal information in job hunting activities. The system allows students to enter their grades and activities through smartphones and other devices, and allows companies to view such information, but the student data are encrypted and stored in a decentralized manner. The blockchain is used to make the data traceable, and the students themselves can choose to whom they want to disclose the information (company) as well as the scope of the information. The companies cannot extract information without permission; thus, personal information is protected. [Institution for a Global Society Co., Ltd.]

Specific Cases Of Initiatives By Each Business Operator (2)

Note: List the key items

< Fairness >

- In the AI quality control process created by the company, measures have been taken to include a process that checks for bias in the original data using a checklist. [NTT DATA Corporation]
- Regarding fairness, we recognize that it is difficult to determine what is considered sensitive. In the areas where it has been identified, we have established check rules and databases for fairness. For example, in the detection of people, we are building a database and tools that check for racial bias. [Sony Group Corporation]
- In order to monitor the fairness and performance of the model, rather than monitoring the model during the development phase to detect bias, we are building a mechanism using technology that monitors the AI model during the execution of the operations to detect the occurrence of bias or data drift and to encourage rectification if needed. [IBM Japan, Ltd.]

< Transparency and accountability >

- With regard to explainable AI, the concept of AI that humans can trust, understand, and manage is important, and it is conceivable to respond by explaining the rationale by using a knowledge graph. For example, in the medical example, a knowledge graph can be created from the medical papers and knowledge databases. An explainable AI can identify whether it is possible to create medical and pharmaceutical grounds is input by connecting past medical papers and knowledge databases on the knowledge graph. [Fujitsu Laboratories Ltd.]
- It is important to explain in an easy-to-understand manner how AI will be used and what effects will be obtained as a result, so that users, such as citizens, understand and accept it. The use of data is on an opt-in basis, and services are provided only after obtaining the consent of the individual. It is important for citizens to be convinced to use AI-based services. [Aizuwakamatsu City]
- Since fair judgment is required for the application of AI for mortgage screening, Explainable AI (XAI) is used to explain the basis for the decision. By using this XAI to provide the basis for the decision, both the reviewer and the reviewee can use the AI with confidence. [Hitachi, Ltd.]

< Appropriate use >

- Especially in the fields of education and human resources, it is dangerous to entrust the work completely to AI. AI should only be used as an auxiliary tool, and the final decision should be made by humans. Globally, the ethical direction regarding the difficulty of using AI decisions as an auxiliary tool without a clear understanding of why the decisions were made the way they were has emerged. [Institution for a Global Society Co., Ltd.]
- Regarding the automatic summarization of AI manuscripts, the system is still in the experimental stage; however, it is envisioned that the system will first automatically create a summary, and then a person will check the result and make corrections before posting it on the website or sharing it on social media. The intent is not to distribute or air the results of AI summaries as they are, but to have a person perform a final check; it is operated in this manner under such a policy for any AI. The idea is to maximize AI as much as possible, but only to support humans. [Nippon Television Network Corporation]
- Under certain conditions, diagnostic imaging AI can have higher detection rates than medical specialists. However, instead of letting AI make decisions, it is positioned in a support role for doctors. The product incorporates a device that does not disrupt the relationship between the doctor's diagnosis and the AI diagnosis to confirm the results. [FUJIFILM Holdings Corporation]

Specific Cases Of Initiatives By Each Business Operator (3)

Note: List the key items

< Quality assurance and development review >

- The Responsible Innovation team is formulating various rules and policies for trust, in conformance with AI principles. In addition, the company provides guidance to teams on how to emphasize AI principles and develop educational materials to help all employees understand and deal with the complexities of AI principles and the problems they address. In addition, it serves as a hub of specialized knowledge on a variety of topics, providing information internally on cases such as AI ethics, social risk research, and human rights. The Central Review Team identifies the AI principles to be applied, and then the review team asks appropriate internal product, ethics, fairness, security, privacy, and other experts to gather specific guidance. Then, the reviewer considers the seriousness of the benefits and damages, the likelihood that a benefit or damage will occur, and asks questions and conducts checks that reflect AI principles. Subsequently, the product research team conducts a technical evaluation according to the technology (for example, examining fairness for new models of machine learning), and, if necessary, consults with an external expert and makes the necessary adjustments to the product. [Google LLC]
- Following the formulation of AI guidelines, we developed a system of AI governance and technology. We created a philosophy for the AI guidelines; however, for it to take root in the field, it is necessary to develop some tools and techniques. We therefore constructed an AI development methodology. This is a methodology that provides “knowledge and processes,” “development standards,” and “quality assessment tools” so that the person in charge of the system development project can develop an AI system based on the AI guidelines.
We are handling about 300 AI projects and have consolidated the knowledge and developed a management process, which each AI system developer and person in charge of the project can refer to in the development process. Since definitions of processes alone are difficult to apply for each project, we created samples of specific deliverables, required documents, and templates. In addition, AI quality is also important; we therefore prepared an assessment tool that allows evaluations to be conducted by using simple checklists and questionnaires. As an AI development methodology, we prepared a document that integrates the AI development knowledge, AI development process, AI management process, AI development standard, and AI quality assessment tool. [NTT DATA Corporation]
- Check items in quality activities were proposed, and an AI quality checklist was compiled in line with the OKI development process. We also created a user’s guide and glossary for this checklist.
We are reinforcing quality management so that it can support AI products, centering on the quality management system operated in the existing solution business. At the stage of contracting with customers, the company refers to the AI contract guidelines, contract templates, AI quality checklist, etc. [Oki Electric Industry Co., Ltd.]
- Rather than just creating a one-time application, a cycle of growth is being established by incorporating new requirements frequently. In this cycle, new applications generate new data. It is necessary to continuously develop the AI model using newly-generated data, and it is important to operate the two continuous delivery cycles of “continuous delivery of applications” and “continuous delivery of data and AI” in both directions. [IBM Japan, Ltd.]

< Cooperation and collaboration with external parties >

- We work with external experts, as well as scholars and minorities, and listen to their perspective regarding AI principles, their practices, and reliable products. It is very important to collaborate with the outside world to understand what users and society want, and to incorporate that into our daily development. [Google LLC]
- Since we need to listen to various opinions on these issues, we also organize dialogues with external experts. Based on this, it is important to create something to earn trust while also considering technology in terms of human rights and privacy; we are therefore engaging in such activities. [NEC Corporation]
- We are characterized by the fact that we are conducting extensive joint research with companies in order to perform research not only from a laboratory but also from an outside perspective in response to the issues that companies are facing and the data that only companies possess. We have collaborated with companies of various sizes, ranging from large corporations to venture companies. [Prof. Hidenori Kawamura (Hokkaido University Graduate School)]
- We are being proactive in external collaboration, as we believe that there are aspects that we cannot solve on our own. Thus, in addition to “Partnership On AI,” “Ethics + Emerging Sciences Group at Cal Poly,” “Business for Social Responsibility,” “OECD,” “Global Partnership on AI,” the “Japan Business Federation,” “Cabinet Office,” and “Ministry of Internal Affairs and Communications,” we participate in activities such as “ISO / IEC JTC1 / SC42.” We also cooperate and collaborate with Microsoft and other companies. [Sony Group Corporation]

Specific Examples Of Initiatives By Each Business Company (4)

Initiatives related to AI development and utilization

Note: List the key items

< COVID-19 measures >

- We searched for a drug for COVID-19 using the supercomputer “Fugaku.” Specifically, we searched for therapeutic drug candidates to suppress proteins related to COVID-19 proliferation from about 2,000 existing drugs by molecular dynamics calculation, which is a type of molecular simulation.
In conventional drug discovery, once a hit compound is found, experiments are conducted to check whether the compound avoids toxicity, has medicinal effects, has side reactions, etc. The synthesis is repeated many times until the final product is non-toxic, highly absorbable, and metabolically stable. The long period of time and the high cost are the challenges in drug discovery; therefore, efforts are underway to use AI to mitigate these issues and to design compounds.
In the case of COVID-19, there are almost no past cases; hence, it is not possible to create AI based on past cases. We believe that one strategy would be to simulate and skip steps using “Fugaku” instead of experimenting. We are conducting research with the idea of combining the two while conducting simulations using AI. [Prof. Yasushi Okuno (Kyoto University Graduate School)]
- This is a case study of the introduction of chatbots to handle inquiries of local governments. The time required to respond to inquiries about COVID-19 has been reduced, allowing governments to focus on other types of work or to respond 24 hours a day. Chatbots can also provide a service that translates inquiries from foreigners who cannot speak Japanese; the translation is provided while the caller is speaking. When it is not possible to interact via chatbot, an operator will respond; however, if the operator can only speak Japanese, the interaction can be handled via chatbot. [NTT Communications Corporation]
- There is a need to determine the number of people in a crowd (crowded conditions). With crowd measurement AI, it is possible to detect the number of people in a crowd from camera images with very high accuracy. By deploying this system at stations and downtown areas, various social implementations are being promoted by checking the crowd density information from time to time. [Toshiba Corporation]
- While the spread of COVID-19 continues, corporate performance and the economic environment are improving. However, non-digital operations and management structures are still required. It is therefore important to utilize digital and AI to reduce costs and improve productivity. In addition, it is necessary to seriously consider increasing the success rate of new businesses; it is important to select projects and focus resources for new businesses. Furthermore, it should be possible to use AI to remotely negotiate and coordinate with those who understand local operations and businesses for overseas projects. It is then expected that the number of successful cases will increase. [Sumitomo Corporation]

< Medical and healthcare >

- In the demonstration in the healthcare field, AI was used to determine the risk of developing lifestyle-related diseases (hypertension, diabetes, and dyslipidemia) based on the results of specific medical examinations and other data. At the same time, the amount of activity was measured based on information from wearable devices, such as pedometers, and behavioral change was encouraged. The results showed that 95% of the users increased their health awareness and 89% changed their health behavior. [Aizuwakamatsu City]
- We started a service to predict the risk of developing six lifestyle-related diseases (diabetes, hypertension, obesity, dyslipidemia, liver dysfunction, and renal dysfunction) from medical examination data. For example, by inputting one year of examination data, AI will show the risk percentage of developing diabetes for the next five years. [Toshiba Corporation]
- Putting an AI diagnostic platform on the Picture Archiving and Communication System (PACS) to semi-automate the workflow of doctors. By using AI to semi-automate the four-step workflow of “visualization,” “detection,” “classification,” and “reporting” after an examination, the goal is to reduce the burden on doctors so that they can spend more time on patient care and other tasks. [FUJIFILM Holdings Corporation]

Specific Examples Of Initiatives By Each Business Company (5)

< People with disabilities and elderly people >

Note: List the key items

- In the demonstration in the healthcare field, AI was used to determine the risk of developing lifestyle-related diseases (hypertension, diabetes, and dyslipidemia) based on the results of specific medical examinations and other data. At the same time, the amount of activity was measured based on information from wearable devices, such as pedometers, and behavioral change was encouraged. The results showed that 95% of the users increased their health awareness and 89% changed their health behavior. [National Institute of Information and Communications Technology]
- In the demonstration for preventing abuse of the elderly (demonstration of the use of AI to identify potential targets of support—that is, those who may be suffering from domestic violence, abuse, lonely death, etc.—from information on welfare operations in order to strengthen support such as watching over them), big data related to abuse (household composition, age, income, disability status, etc.) was provided by the Ministry of Health, Labor and Welfare. After analyzing the tendency of high abuse using AI, we entered the data of the cases of actual households in the city and scored the possibility of abuse. Therefore, it was possible to obtain results with a certain degree of accuracy, as many of the cases that were recognized by AI as having a high possibility of abuse, corresponded to actual abuse. [Aizuwakamatsu City]
- With regard to the automatic addition of commentary audio to broadcast audio, we are researching a system that enables visually-impaired people to enjoy live broadcasts by automatically generating commentary audio to complement the program and overlapping it with the broadcast audio.
Regarding the generation of sign language content using CG, currently, the number of sign language broadcasts is not increasing due to the lack of sign language newscasters. However, since weather and sports are easy to handle because of their many standardized expressions, work is being done to provide sign language CG services in these fields. [NHK Science & Technology Research Laboratories]

Initiatives related to human resource development

- The company provides AI literacy education for external users and also creates and provides various types of programs for university students, working adults, and researchers. In AI business education, workshops on risk checking are conducted so that participants can experience it themselves. In addition, in terms of AI engineer education, we are focusing on classroom-based learning and are also collaborating with universities for practical education. The aim is to increase AI human resources by having university faculty members provide practical training to employees based on their projects. [NEC Corporation]
- We have defined human capital levels and created portfolios. We created a training system for each level and type of work, and are providing training to raise the level of skills throughout the group. For AI literacy education, we are developing an e-learning program for all employees, and more than 7,000 people have taken the course. In addition, we made videos explaining the points to consider in AI business and the AI contract guidelines, and are using them in AI sales education, AI engineer education, and AI business education. [Oki Electric Industry Co., Ltd.]
- For education and awareness, e-learning was introduced in 2019 as mandatory for all employees who are eligible. It is introductory, and includes what is AI ethics, AI ethics incidents that occur around the world, and the outline of Sony Group AI Ethics Guidelines, the outline of data compliance, especially how to collect data, and how to be aware of bias. [Sony Group Corporation]
- Human resources within the company are very important in promoting the use of AI. In order to create and realize human resource development plans as a group, an internal AI engineer training program was developed in collaboration with universities, and includes intensive and specialized AI education and training. This training is continuously implemented, and engineers who have never been exposed to AI before are now able to develop AI models and design systems by taking this course, which is being deployed internally. [Toshiba Corporation]
- Regarding the training of data scientists, we have divided scientists into three tiers—Gold, Silver, and Bronze—and are working toward improving their levels and developing digital transformation human resources (3,000 people in total). The Gold level consists of top data scientists who tackle advanced issues and create new methods; open innovation is actively used to hone technology and people. The Silver level consists of leaders in the data analysis business of each business unit; people from internal business units are accepted and trained through OJT. The Bronze level consists of people responsible for data analysis practices, leveraging a development program created by Lumada Data Science Lab., which is a top data scientist group, to provide opportunities for skill improvement. [Hitachi, Ltd.]