Chapter 3

Global trends in AI-related R&D

As seen in Chapter 1, AI research has experienced repeated booms, and since the third boom, private investment relating to AI has been on an increase around the world, including the United States, the United Kingdom, and China,¹ and the number of AIrelated papers has more than tripled since 2010 (Figure 1-3-1). While the number of presentations at and submissions to major international conferences, such as the conference of the Association for the Advancement of Artificial Intelligence (AAAI), has also been increasing overall, the United States has taken the lead so far, but as China has been catching up in recent years, the United States and China are becoming the two leading countries² (Figure 1-3-2). At the same time, due to concerns about incorrect information and safety/transparency, ELSI of AI is also attracting attention, and international discussions have started on this topic. Under such circumstances, each country is promoting R&D by formulating a national strategy on AI while developing human resources that engage in AI technology and developing rules for the utilization of AI. This chapter introduces the trends of major countries and regions promoting AI R&D and explains international discussions and multilateral collaborations and cooperation regarding AI.

Stanford Institute for Human-Centered Artificial Intelligence "Artificial Intelligence Index Report 2024." https://aiindex.stanford.edu/report/ Goldman Sacks, "AI investment forecast to approach \$200 billion globally by 2025."

https://www.goldmansachs.com/intelligence/pages/ai-investment-forecast-to-approach-200-billion-globally-by-2025.html

² National Institute of Science and Technology Policy, MEXT, "Changes in the Number of Presentations by Country at International Conference in the Field of Artificial Intelligence and Robotics" (May 2023). https://doi.org/10.15108/dp222



■ Figure 1-3-1/Changes in the number of AI-related papers

Note: The data only includes the number of "journal publications," and does not include "books," "dissertations," and "conferences," etc.

Source: Created by MEXT based on Figure 1.1.6 of Artificial Intelligence Index Report 2024, Stanford Institute for Human-Centered Artificial Intelligence.

■ Figure 1-3-2/Number of presentations at the AAAI by country



Source: Created by MEXT based on the National Institute of Science and Technology Policy, MEXT, "Changes in the Number of Presentations by Country at International Conference in the Field of Artificial Intelligence and Robotics" (May 2023). * The "number of presentations by country" for each country was aggregated by an integer count. The total is indicated as the "total number of presentations."

Section 1

AI-related R&D strategies in major countries/regions

1-1. United States

To strategically promote R&D in the field of AI, the U.S. government formulated the "National Artificial Intelligence Research And Development Strategic Plan" (National AI R&D Strategic Plan) in 2016, and announced a policy to prioritize matters such as long-term investments in AI research, human-AI collaboration, and understanding of ethical, legal, and societal implications of AI. After revising the strategy in 2019, the U.S. government

published a further revised version in May 2023, newly adding initiatives on strategic international collaborations.¹ Then, based on the "National Artificial Intelligence Initiative Act of 2020,"² the "National Artificial Intelligence Initiative Office" (NAIIO)was established in the Office of Science and Technology Policy (OSTP), Executive Office of the President, in January 2021.⁸ The NAIIO, together with the Select Committee on Artificial Intelligence

Select Committee on Artificial Intelligence of the National Science and Technology Council, "National Artificial Intelligence Research and Development Strategic Plan 2023 Update." https://www.whitehouse.gov/wp-content/uploads/2023/05/National-Artificial-Intelligence-Research-and-Development-Strategic-Plan-2023-

Update.pdf Congress.gov, "H.R.6216 - National Artificial Intelligence Initiative Act of 2020."

https://www.congress.gov/bill/116th-congress/house-bill/6216 The White House, "The White House Launches the National Artificial Intelligence Initiative Office." 3

https://trumpwhitehouse.archives.gov/briefings-statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artificial-intelligence-initiative-office/statements/white-house-launches-national-artifice/statements/white-house-launches-national-artifice/statements/white-house-launches-national-artifice/statements/white-house-launches-national-artifice/statements/white-house-launches-national-artifice/stat

(SCAI¹) set up in the National Science and Technology Council (NSTC), coordinates among government agencies regarding AI initiatives. In addition, the National AI Advisory Committee $(NAIAC^2)$ set up in the Department of Commerce gives advice to the President and the NAIIO about various AI-related issues. In this manner, in order to push forward the government's overall AI strategy, and collaboration coordination are being implemented among the government, private companies, academia, and other related organizations.

In addition, in response to the rapid progress of and increased attention to advanced AI technology as discussed in Chapter 1, the Biden administration in the United States announced a policy to take actions to promote responsible innovation in May 2023, and announced that voluntary commitments were made based on three principles-safety, security, and trustby seven private companies leading AI R&D (Amazon, Anthropic, Google, Inflection, Meta, Microsoft, and OpenAI) in July 2023, and by eight additional companies (Adobe, Cohere, IBM, NVIDIA, Palantir, Salesforce, Scale AI, and Stability) in September of that year.³.In October 2023, President Biden signed the "Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence." ⁴ This Executive Order includes provisions requiring developers of foundation models that could pose serious risks to provide the government with safety assessment results, under the

"Defense Production Act." Based on this Executive Order, the government announced, in November, new initiatives to advance the safe and responsible use of AI, including establishment of the United States Artificial Intelligence Safety Institute (USAISI⁵) within the National Institute of Standards and Technology (NIST) of the Department of Commerce.⁶ With regard to copyright, the U.S. Copyright Office (USCO) solicited comments for the purpose of studying copyright law and policy issues raised by generative AI technology in August 2023.⁷

Under such policies and frameworks, with regard to R&D, the U.S. National Science Foundation (NSF) has been working to form a network of AI research institutes since 2020, in collaboration with other federal agencies, higher education institutions, and other related organizations. In May 2023, the NSF announced establishment of the seven new AI research institutes shown in Table 1-3-3.8 To date, it has announced the provision of support of approximately 500 million dollars to a total of 25 research institutes including the seven new institutes. Each base is also working on interdisciplinary research and the development of next-generation human resources. Further, in October 2023, the NSF announced the provision of subsidies totaling 10.9 million dollars to a total of 11 research projects of universities, etc. that promote development of safe AI.⁹

Furthermore, in January 2023, the "National

https://ai.gov/wp-content/uploads/2023/10/NAIAC-Charter.pdf The White House, "FACT SHEET: Biden-Harris Administration Secures Voluntary Commitments from Leading Artificial Intelligence Companies to Manage the Risks Posed by AI."

Manage the Kiss Fosed by AL. https://www.whitehouse.gov/briefing-room/statements-releases/2023/07/21/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-leading-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/ The White House, "FACT SHEET: Biden-Harris Administration Secures Voluntary Commitments from Eight Additional Artificial Intelligence Companies to Manage the Risks Posed by AL."

thtps://www.whitehouse.gov/briefing-room/statements-releases/2023/09/12/fact-sheet-biden-harris-administration-secures-voluntary-commitments-from-eight-additional-artificial-intelligence-companies-to-manage-the-risks-posed-by-ai/ The White House, "The White House Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence."

https://www.whitehouse.gov/briefing-room/presidential-actions/2023/10/30/executive-order-on-the-safe-secure-and-trustworthy-development-and-use-of-artificial-intelligence/

advance-the-safe-and-responsible-use-of-artificial-intelligence/ USCO, "Copyright and Artificial Intelligence." https://www.copyright.gov/ai/

https://www.whitehouse.gov/ostp/ostps-teams/nstc/select-committee-on-artificial-intelligence/

https://www.nist.gov/artificial-intelligence-safety-institute In February 2024, the USAISI's executive personnel and consortium framework were announced. The White House, "FACT SHEET: Vice President Harris Announces New U.S. Initiatives to Advance the Safe and Responsible Use of Artificial 6 Intelligence. https://www.whitehouse.gov/briefing-room/statements-releases/2023/11/01/fact-sheet-vice-president-harris-announces-new-u-s-initiatives-to-

NSF, "NSF announces 7 new National Artificial Intelligence Research Institutes."

https://new.nsf.gov/news/nsf-announces-7-new-national-artificial

NSF, "NSF invests \$10.9M in the development of safe artificial intelligence technologies." 9 https://new.nsf.gov/news/nsf-invests-10-9m-development-safe-ai-tecl

-		
Theme	Fund providers	
Trustworthy AI	A partnership between NSF	
	and NIST	
Intelligent Agents for	A partnership between NSF,	
Next-Generation	DHS S&T (Science and	
Cybersecurity	Technology Directorate,	
	Department of Homeland	
	Security), and IBM	
Climate Smart	USDA-NIFA (National	
Agriculture and Forestry	Institute of Food and	
	Agriculture, Department of	
	Agriculture)	
Neural and Cognitive	A partnership between NSF	
Foundations of Artificial	and OUSD (R&E) (Office of	
Intelligence	the Under Secretary of	
_	Defense for Research and	
	Engineering)	
AI for Decision Making	NSF	
AI-Augmented Learning	A partnership between NSF	
to Expand Education	and $ED-IES^2$	
Opportunities and		
Improve Outcomes		
AI-Augmented Learning	A partnership between NSF	
to Expand Education	and ED-IES	
Opportunities and		
Improve Outcomes		
	Theme Trustworthy AI Intelligent Agents for Next-Generation Cybersecurity Climate Smart Agriculture and Forestry Neural and Cognitive Foundations of Artificial Intelligence AI for Decision Making AI-Augmented Learning to Expand Education Opportunities and Improve Outcomes AI-Augmented Learning to Expand Education Opportunities and Improve Outcomes	

■ Table 1-3-3/NSF AI research institutes (National AI Research Institutes)

Source: Created by MEXT based on information announced by the NSF (May 2023).

Artificial Intelligence Research Resource (NAIRR) Task Force," which was studying methods for developing infrastructure, such as computational resources, data, educational tools, etc., accessible to researchers and students in all fields, compiled a final report, ¹ and in January 2024, various pilot programs were started, led by the NSF and with the participation of multiple government agencies and companies, etc., toward the vision presented in that report.³

Meanwhile, the Defense Advanced Research Projects Agency (DARPA) announced in 2018 a multi-year investment of more than 2 billion dollars in programs called the "AI Next" campaign.⁴ Moreover, DARPA launched the "Automating Scientific Knowledge Extraction and Modeling (ASKEM) Program" in December 2021 with an aim to automate and strengthen modeling and simulation that contribute to timely threat detection and decision making in the modern society 5 (Figure 1-3-4), and supports the R&D conducted by the adopted universities and companies, etc. at home and abroad.⁶

In industry, large IT companies, such as Google,

The White House, "National Artificial Intelligence Research Resource Task Force Releases Final Report." https://www.whitehouse.gov/ostp/news-updates/2023/01/24/national-artificial-intelligence-research-resource -task-force-releases-final-report/

Institute of Education Science under the U.S. Department of Education NSF, "National Artificial Intelligence Research Resource Pilot." https://new.nsf.gov/focus-areas/artificial-intelligence/nairr

DARPA, "DARPA Announces \$2 Billion Campaign to Develop Next Wave of AI Technologies." 4

https://www.darpa.mil/news-events/2018-09-07

DARPA, "Leveraging AI to Accelerate Development of Scientific Models." 5

https://www.darpa.mil/news-events/2021-12-06

DARPA, "DARPA Selects Teams to Improve How Scientists Build/Sustain Models, Simulations." 6 https://www.darpa.mil/news-events/2022-09-23

Microsoft, and Amazon, carry out various businesses with AI as a core technology. For example, Google not only provides software services of search, translation, and voice recognition using AI, but also develops "Gemini (former Bard)," which is conversational generative AI, and automated driving technology using AI. Microsoft provides services such as cloud computing using AI and an AI platform, and also develops a medical imaging diagnosis support system using AI and AI-related learning materials.¹





1-2. United Kingdom

In the United Kingdom, a broad range of AI R&D, from basic research to applied research, has been conducted, mainly at universities, as represented by the fact that a research paper published by mathematician Dr. Alan Turing in 1950 served as the origin of the subsequent AI research. Making the most of such strength, the UK government adopted a policy to develop AI as safe and trustworthy technology, aiming to make it contribute to economic growth and sustainable development of society. Under this policy, the UK government has actively implemented various policies regarding R&D, industry-universitygovernment collaborations, and data sharing, among other AI-related matter, particularly since the 2010s.

Specifically, big data was selected as one of the eight national key technologies (Great Technologies) announced in 2012, and the Alan Turing Institute, ² which conducts data science research, was established as a national research institution in 2015. In addition, DeepMind, a startup founded by Demis Hassabis in 2010, was acquired by Google in 2014, and the world's growing interest in machine learning led to

¹

Microsoft, "AI platform, tools, services." https://www.microsoft.com/ja-jp/ai/ai-platform

² https://www.turing.ac.uk/about-us

TT I I			
University	Theme of the UKRI AI Centre for Doctoral Training		
University of Surrey	AI for Digital Media Inclusion		
(with University of London and Royal Holloway)			
University of Oxford	AI for the Environment (Intelligent Earth)		
University of Lincoln	Sustainable Understandable agri-food Systems		
(with University of Aberdeen, University of Strathclyde,	Transformed by Artificial INtelligence (SUSTAIN)		
and Queen's University Belfast)			
The University of Edinburgh	Responsible and Trustworthy in-the-world Natural		
	Language Processing		
University of Bristol	Practice-Oriented Artificial Intelligence (PrO-AI)		
Northumbria University	Citizen-Centred Artificial Intelligence		
Heriot-Watt University	Dependable and Deployable Artificial Intelligence for		
(with The University of Edinburgh)	Robotics (D2AIR)		
Imperial College London	Digital Healthcare		
University of Southampton	AI for Sustainability		
University of York	Lifelong Safety Assurance of AI-enabled Autonomous		
	Systems (SAINTS)		
The University of Manchester	Decision Making for Complex Systems		
(with University of Cambridge)			
The University of Edinburgh	Biomedical Innovation		

Table 1-3-5/UKRI AI Centres for Doctoral Training (announced in October 2023)

Source: Created by MEXT based on a press release⁶ of the UK Department for Science, Innovation & Technology (DSIT).

expansion¹ of AI research, particularly at the Alan Turing Institute. Moreover, progress has also been made in government organizations' utilization of AI in public services, with an announcement being made in 2019 to establish the NHS AI Lab² in then NHS user experience (NHSX ³), which was in charge of the National Health Service (NHS), for example.

Furthermore, the UK government announced the "National AI Strategy"⁴ in September 2021 as a ten-year plan to make the United Kingdom a global superpower, and formulated an "AI Action Plan^{*5} in July 2022. At present, the Office for Artificial Intelligence set up in the Department for Science, Innovation and Technology (DSIT) is responsible for overseeing the National AI Strategy. The UK government positioned AI as one of five critical technologies in the "UK Science and Technology Framework"⁷ released in March 2023, and after announcing policies to develop and support AI researchers,^{8,9} it has provided support to universities conducting research and human resource development aimed at establishment of responsible and trustworthy AI, through the UK

The Alan Turing Institute is a research institute established in London in 2015 by the UK government as the national institute for data science, with the support of the UK Engineering and Physical Sciences Research Council and five universities – Cambridge, Oxford, Edinburgh, UCL and Warwick. In 2017, AI was clearly identified as its research target, and in 2018, eight universities – Queen Mary University of London, Leeds, Manchester, Newcastle, Southampton, Birmingham, Exeter, and Bristol – joined the institute. The institute engages in various joint research projects, such as advancing medical care by using AI and improving the efficiency of the manufacturing industry by using AI, as a core AI research base in the United Kingdom.
 https://transform.england.nhs.uk/ai-lab/

³ NHS user experience

⁴ Government of the United Kingdom, "National AI Strategy."

https://www.gov.uk/government/publications/national-ai-strategy

⁵ Government of the United Kingdom, "National AI Strategy - AI Action Plan."

https://www.gov.uk/government/publications/national-ai-strategy-ai-action-plan/national-ai-strategy-ai-action-plan

⁶ Government of the United Kingdom, "Britain to be made AI match-fit with \pounds 118 million skills package."

https://www.gov.uk/government/news/britain-to-be-made-ai-match-fit-with-118-million-skills-package

⁷ Government of the United Kingdom, "UK Science and Technology Framework." https://www.gov.uk/government/publications/uk-science-and-technology-framework

⁸ Government of the United Kingdom, "Plan to forge a better Britain through science and technology unveiled."

https://www.gov.uk/government/news/plan-to-forge-a-better-britain-through-science-and-technology-unveiled

⁹ Government of the United Kingdom, "£54 million boost to develop secure and trustworthy AI research." https://www.gov.uk/government/news/54-million-boost-to-develop-secure-and-trustworthy-ai-research

Research and Innovation (UKRI) (Table 1-3-5).

At the same time, not only R&D, but also research and discussions on the impacts of AI on society have actively been conducted. The "Strategic Artificial Intelligence Research Centre (SAIRC)"¹ was established at the University of Oxford in 2015 and the "Leverhulme Centre for the Future of Intelligence"² was set up at the University of Cambridge in 2016. These centers have proactively carried out research on the impacts of AI on employment, etc. and safety of AI. Against this backdrop, the UK government announced a policy to implement a pro-innovation approach to AI regulation in March 2023.³ Subsequently, the UK government compiled the risks of frontier AI,⁴ and organized the "AI Safety Summit" in the United Kingdom in November 2023 as an international conference on safe development and use of AI.⁵ The Summit was attended by heads of states and ministerial-level officials of G7 and other countries, representatives from international organizations and leading AI companies, as well as experts and others. The Summit adopted the "Bletchley Declaration", which included the affirmation to deepen the understanding of the risks of frontier AI, given the rapid development of AI, and to work together to promote initiatives through international cooperation. From Japan, the Prime Minister attended the Summit meeting, while a Parliamentary Vice-Minister for Internal Affairs and Communications attended the ministerial-level meeting. They expressed the importance of bringing together the wisdom of humanity to establish appropriate AI governance internationally, based on the premise that AI has both enormous potentials as well as risks. In addition, the UK government announced establishment of the UK Artificial Intelligence Safety Institute (UKAISI), which will test the safety of advanced AI in collaboration with international partners.

In the UK Parliament, the House of Lords Communications and Digital Committee undertook an inquiry to examine LLMs and generative AI, and released its report in February 2024.⁶ Also, discussions have been held on an AIrelated private members' bill.⁷

In July 2022, the UK and U.S. governments launched "Privacy-Enhancing Technologies (PETs) Prize Challenges" in order to promote globally coordinated R&D on federated learning, one of the development processes in AI research.⁸ In these challenges, developers presented solutions to two challenges—"financial crime prevention" and "pandemic response and forecasting"—and they were examined in three phases: submission of a concept paper; actual development and learning using pseudo-data that is close to the real data; and resistance to privacy attacks from teams that also participated in the challenges. In the end, the winners were announced in March 2023, 1.3 million pounds (1.6 million dollars) prepared by the UK and U.S. governments and related organizations were

¹ The centre was closed in line with the closure of its upper organization, the "Future of Humanity Institute," in April 2024.

² http://lcfi.ac.uk/

³ Government of the United Kingdom, "AI regulation: a pro-innovation approach." https://www.gov.uk/government/publications/ai-regulation-a-proinnovation-approach

⁴ Government Office for Science, "Future Risks of Frontier AI." https://assets.publishing.service.gov.uk/media/653bc393d10f3500139a6ac5/future-risks-of-frontier-ai-annex-a.pdf

⁵ Government of the United Kingdom, "AI Safety Summit 2023."

https://www.gov.uk/government/topical-events/ai-safety-summit-2023

⁶ UK Parliament "UK will miss AI goldrush unless Government adopts a more positive vision." https://committees.parliament.uk/work/7827/largelanguage-models/news/199728/uk-will-miss-ai-goldrush-unless-government-adopts-a-more-positive-vision/

⁷ UK Parliament, "Artificial Intelligence (Regulation) Bill [HL]."

https://bills.parliament.uk/bills/3519

⁸ Government of the United Kingdom, "UK and US launch innovation prize challenges in privacy-enhancing technologies to tackle financial crime and public health emergencies."

https://www.gov.uk/government/news/uk-and-us-launch-innovation-prize-challenges-in-privacy-enhancing-technologies-to-tackle-financial-crimeand-public-health-emergencies

awarded to them as prizes.¹

1-3. European Union (EU)

The EU is advancing discussions with a focus on data governance and regulations, while also promoting the development of environments for AI development and use. In addition, as will be described in Chapter 4, discussions on the use of AI in science are also under way.

First, in Europe, the "General Data Protection Regulation (GDPR)," which is a regulation for protecting data security and privacy, was put into effect in 2018. The GDPR imposes obligations on companies collecting/using personal data within the EU, such as obtaining the consent of the data subject, ensuring data security, and restricting data transfers. Also, in the case of developing and using AI systems, the GDPR needs to be observed if personal data within the EU is collected or used.

In this context, in 2018, a strategy titled "Artificial Intelligence for Europe"² was formulated, indicating directions such as boosting the EU's technological and industrial capacity and ensuring an appropriate ethical and legal framework.

With regard to ensuring an appropriate legal framework, the "AI Act" was proposed by the European Commission in April 2021, and after subsequent discussions and corrections, it was adopted by the European Parliament in March 2024.³, ⁴, ⁵ The Act aims to ensure that AI is safe and ethical, and is developed and used in a manner compliant with the EU's values. It provides general principles to be applied to the development and use

of AI, and imposes restrictions on the development and use of AI that involves specific risks. Specifically, the AI Act adopts a risk-based approach specifying the obligations to be observed in the development, use, and operation of AI systems, categorizes AI systems into four risk levels (unacceptable risk, high risk, limited risk, and minimal risk) (Figure 1-3-6), and applies regulations and penalties according to the risk level. This Act applies not only to business entities located in EU member states, but also to those in third countries intending to provide high-risk AI services or enter markets within the EU. Furthermore, as general-purpose AI (GPAI) systems and GPAI models display significant generality and are capable of competently performing a wide range of distinct tasks, and they can be integrated into a variety of downstream systems or applications, there are concerns that they could cause more systemic risks (risks having a significant impact on the entire system due to their reach). Therefore, discussions were held about introducing provisions for securing a certain level of transparency and provisions requiring additional risk management for such systems and models.

In addition, support has been provided for R&D focusing on machine translation, within the European framework, and in January 2024, the European Commission announced a policy package to support AI innovation⁶ and presented a support framework targeting startups and SMEs. It includes an initiative to encourage development and use of AI by startups and SMEs through the

¹ Government of the United Kingdom, "At Summit for Democracy, the United Kingdom and the United States Announce Winners of Challenge to Drive Innovation in Privacy-Enhancing Technologies that Reinforce Democratic Values."

https://www.gov.uk/government/news/at-summit-for-democracy-the-united-kingdom-and-the-united-states-announce-winners-of-challenge-todrive-innovation-in-privacy-enhancing-technologies

² European Commission, "Artificial Intelligence for Europe."

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:237:FIN

³ Then the Act was approved by the European Council and was enacted (approved on May 21, 2024).

⁴ European Parliament, "Artificial Intelligence Act: MEPs adopt landmark law." https://www.europarl.europa.eu/news/en/press-room/20240308IPR19015/artificial-intelligence-act-meps-adopt-landmark-law

⁵ European Parliament, "TEXTS ADOPTED: Artificial Intelligence Act."

https://www.europarl.europa.eu/doceo/document/TA-9-2024-0138_EN.pdf

⁶ European Commission, "Commission launches AI innovation package to support Artificial Intelligence startups and SMEs." https://ec.europa.eu/commission/presscorner/detail/en/ip_24_383

use of EuroHPC JU^1 supercomputers, which are steadily being installed within the EU, and establishment of an AI Office within the European Commission for conducting tasks such as coordinating the EU's AI policies.



1-4. Germany

Germany announced the "National AI Strategy (Nationale Strategie für Künstliche Intelligenz)" in 2018. The strategy aims to make Germany and Europe a leading center for AI technology, attract AI investments, develop the Network of German Centres of Excellence for AI Research, ² and review research funding schemes, and thereby safeguard Germany's future competitiveness. Germany also actively promotes the EU's AI strategy, and as in the case of the EU-wide initiative, positions development of data governance as an important pillar of its National

AI Strategy.³

In addition, in 2020, Germany updated this strategy,⁴ and sets out that there is a need to further establish and expand AI ecosystems in Germany and Europe in order to strengthen the wide-ranging application of AI and to increase the recognition of the excellent initiatives and structures. The strategy indicates that responsible development and application of AI systems for the "common good" (public interest) constitute a characteristic and an indispensable part of "AI Made in Europe." Further, themes such as pandemic countermeasures, sustainability,

¹ The European High-Performance Computing Joint Undertaking

² A network formed by six research institutions leading the AI research field. Deutsches Forschungszentrum f
ür K
ünstliche Intelligenz (German Research Center for Artificial Intelligence), "Network of German Centres of Excellence for AI Research."

https://www.dfki.de/en/web/qualifications-networks/networks-initiatives/centres-of-excellence-for-ai-research

³ Federal Government of Germany, "BMBF VERÖFFENTLICHT KI-AKTIONSPLAN." https://www.ki-strategie-deutschland.de/home.html Federal Government of Germany, "Artificial Intelligence Strategy."

https://www.ki-strategie-deutschland.de/home.html?file=files/downloads/Nationale_KI-Strategie_engl.pdf&cid=729 4 Federal Government of Germany, "Artificial Intelligence Strategy of the German Federal Government 2020 Update." https://www.ki-strategie-deutschland.de/home.html?file=files/downloads/Fortschreibung_KI-Strategie_engl.pdf&cid=955

particularly the environment and climate protection, and establishment of international and European networks are at the heart of the new initiatives.

1-5. France

France historically has strengths in research in the basic mathematics field, and has actively promoted research and human resource development relating to AI. "France 2030," a policybased investment and loan program for 2022 to 2026 which was announced in October 2021, mentions AI as one of the priority investment fields.¹

Specifically, the French government announced the "National Strategy for AI"² in November 2018. With an aim to develop AI as safe and trustworthy technology and make it contribute to the economic growth and sustainable social development of France, the strategy set out a plan to provide a total of 665 million euros over a period of four years until 2022 for such initiatives as the implementation of an AI research program led by the National Institute for Research in Digital Science and Technology (Inria³), reinforcement of AI research at the French National Research Agency (ANR⁴), development of AI human resources, increasing computing resources, and strengthening bilateral, intra-European, and international cooperation.

In addition, in November 2021, the French government announced the launch of the second phase of this strategy,⁵ indicating that the number of trained AI human resources will be increased and that the public and private sectors will invest a total of 2.22 billion euros in the AI field over the next five years, with focus on dissemination of AI in the economy. Further, in September 2023, the Committee on Generative Artificial Intelligence was setup,⁶ and it engaged in activities with an aim to bring together persons concerned from different sectors (cultural, economic, technological, and research), to help inform the government's decisions and make France a country at the forefront of the AI revolution.

1-6. Italy

In Italy, the Minister of Technological Innovation and Digital Transition announced the "Strategic Program on Artificial Intelligence 2022-2024"⁷ in November 2021, which provides an overview of the Italian AI research ecosystem, makes its international comparison, and indicates six objectives, 11 priority sectors, and three areas of policy intervention for the period until 2024.

Specifically, it sets out the following six objectives: [i] advance frontier research in AI; [ii] reduce AI research fragmentation; [iii] develop and adopt human-centered and trustworthy AI: [iv] increase AI-based innovation and the development of AI technology; [v] develop AIdriven policies and services in the public sector; and [vi] create, retain and attract AI talent in Italy. In order to achieve these objectives, the program presents the following three areas of intervention: (1) strengthening and attracting the talents and

¹ French Ministry of the Economy, Finance and Industrial and Digital Sovereignty, "La stratégie nationale pour l'intelligence artificielle." https://www.economie.gouv.fr/strategie-nationale-intelligence-artificielle

CRDS, JST (2024), "Science, Technology and Innovation Policy Trends in Major Countries and Regions (2024)."

² French Ministry of Higher Education and Research, "La stratégie nationale de recherche en intelligence artificielle"

https://www.enseignementsup-recherche.gouv.fr/fr/la-strategie-nationale-de-recherche-en-intelligence-artificielle-49166

³ Institut National de Recherche en Informatique et en Automatique

⁴ Agence Nationale de la Recherche

⁵ French Ministry of the Economy, Finance and Industrial and Digital Sovereignty, "STRATÉGIE NATIONALE POUR L'INTELLIGENCE ARTIFICIELLE – 2e phase." https://presse.economie.gouv.fr/wp-content/uploads/2021/11/8bcf2b43571df79a59055eab0cc5047e.pdf

⁶ French Ministry of the Economy, Finance and Industrial and Digital Sovereignty, "Numérique : la France se dote d'un comité de l'intelligence artificielle générative."

https://www.economie.gouv.fr/comite-intelligence-artificielle-generative

⁷ Italian Government, "Strategic Programme on Artificial Intelligence 2022-2024." https://assets.innovazione.govit/1637777513-strategic-program-aiweb.pdf

competences; (2) expanding funding of advanced research in AI; and (3) favoring the adoption of AI and its applications both in the public administration and in the Italian economy at large.

1-7. Canada

In Canada, cutting-edge AI R&D is promoted at universities, etc. under the support of the government, led by pioneers of deep learning including Professor Emeritus Geoffrey Hinton at the University of Toronto and Professor Yoshua Bengio at the University of Montreal. The "Neural Computation and Adaptive Perception" project by Professor Hinton (at the time) and others, which was launched in 2004 and funded by the Canadian Institute for Advanced Research (CIFAR), became a forerunner to the present machine learning research. Due to such factors as that a team from the University of Toronto led by Professor Hinton (at the time) proposed high-accuracy image recognition technology "deep using а convolutional neural network" and attracted worldwide attention in 2012, and DNNresearch Inc., a startup created by Professor Hinton (at the time), was acquired by Google in 2013, leading technology companies have established their R&D bases in cities such as Toronto and Montreal, and AI-related startup companies have also been gathering there.¹

Building on such excellent research and human resources, the Canadian government announced a national strategy titled "Pan-Canadian Artificial Intelligence Strategy" in March 2017,² and further announced the launch of the second phase of the strategy in June 2022.⁸ Various initiatives are being implemented according to the three pillars of the strategy, which are [i] commercialization, [ii] standards, and [iii] talent and research.

Specifically, in the first phase of the strategy, initiatives for developing human resources and building the research ecosystem were implemented through the CIFAR and other organizations, including the establishment of three national AI research institutes, namely, the Alberta Machine Intelligence Institute (Amii)⁴ in Edmonton, Alberta, the Montreal Institute for Learning Algorithms (Mila)⁵ in Quebec, and the Vector Institute (Vector)⁶ in Toronto, Ontario, as well as other research, innovation, and training centers.⁷

In the second phase, initiatives aimed at bridging Canada's world-class talent and research capacity with programs to enable commercialization and adoption to help ensure that Canadian ideas and knowledge are mobilized and commercialized in Canada are implemented across Canada while building partnerships. In October 2023, the impact of the past initiatives implemented under the strategy was compiled and announced.⁸ In March 2024, the Canadian government announced its support for the creation of a computing cluster for AI research at Université Laval.⁹

In addition, in September 2023, the Canadian government released the "Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI

Japan External Trade Organization (2018), "AI Superclusters: Toronto and Montreal."

² Government of Canada, "Pan-Canadian Artificial Intelligence Strategy." https://ised-isde.canada.ca/site/ai-strategy/en

³ Government of Canada, "Government of Canada launches second phase of the Pan-Canadian Artificial Intelligence Strategy." https://www.canada.ca/en/innovation-science-economic-development/news/2022/06/government-of-canada-launches-second-phase-of-the-pancanadian-artificial-intelligence-strategy.html

⁴ https://www.amii.ca/

⁵ https://mila.quebec/en/mila/

The institute was founded by Professor Bengio in 1993. Currently, it is operated through collaboration among four universities, including Université de Montréal and McGill University, within Quebec.

⁶ https://vectorinstitute.ai/

⁷ CIFAR, "The Pan-Canadian AI Strategy." https://cifar.ca/ai/

⁸ CIFAR, "AICan: The Impact of the Pan-Canadian AI Strategy." https://cifar.ca/ai/impact/

⁹ Government of Canada, "Government of Canada supports creation of AI computing cluster at Université Laval."

https://www.canada.ca/en/innovation-science-economic-development/news/2024/03/government-of-canada-supports-creation-of-ai-computing-cluster-at-universite-laval.html

Systems." ¹ The code identifies measures that should be applied in advance of binding regulation pursuant to the Artificial Intelligence and Data Act ² by all firms developing or managing the operations of a generative AI system with generalpurpose capabilities, as well as additional measures that should be taken by firms developing or managing the operations of these systems.

1-8. People's Republic of China (China)

In China, development of new industries using big data and AI is actively promoted, backed by large-scale investments by the government. The Chinese government announced "Made in China 2025" in May 2015 as an industrial policy, which cited next-generation information technology (semiconductors, 5G, and AI) as one of the priority areas. In July 2017, the government announced the "Next Generation Artificial Intelligence Development Plan"⁸ as a new national strategy, and presented a roadmap up to 2030.

This plan sets out goals to make AI technology and application reach a globally advanced level by 2020, to achieve breakthroughs in AI basic theories and bring a part of AI technology and application to the world-leading level by 2025, and finally bring all AI theories, technology, and application to the world-leading level by 2030. It also aims to expand the scale of the core AI industry to over 1 trillion yuan, and to also expand the scale of related industries that are driven by it to over 10 trillion yuan. The plan incorporates various initiatives including R&D and human resource development. Under this plan, the Chinese government designated five companies in five sectors (Tencent for medical imaging recognition, Alibaba Cloud for smart city, Baidu for automated driving, iFLYTEK for voice recognition, and SenseTime for image processing) as the "national open innovation platform for next-generation AI," and supports their technical demonstrations and implementations.⁴

In addition, in the Report on the Work of the Government delivered at the National People's Congress in March 2024, the launch of an "AI Plus initiative," which aims to step up R&D and application of AI and build digital industry clusters, was announced.⁵

With regard to AI risks and governance, the Generation Artificial Next Intelligence Development Plan of 2017 pointed out the importance of ethical norms, and the National Governance Committee for New Generation Artificial Intelligence was established. The Chinese government also released "Principles for Next-Generation AI Governance: Developing Responsible AI" in June 2019, and also "Code of Ethics for Next-Generation Artificial Intelligence" in September 2021.⁶ Further, in August 2023, the "Interim Regulation on the Management of Generative AI Services,"⁷ which provides for matters including a mandatory prior examination by the authorities, came into effect.

1-9. Singapore

In Singapore, while various projects for the development and use of cutting-edge digital technology have been implemented based on the

Government of Canada, "Voluntary Code of Conduct on the Responsible Development and Management of Advanced Generative AI Systems." https://ised-isde.canada.ca/site/ised/en/voluntary-code-conduct-responsible-development-and-management-advanced-generative-ai-systems
 Government of Canada, "Artificial Intelligence and Data Act."

https://ised-isde.canada.ca/site/innovation-better-canada/en/artificial-intelligence-and-data-act

³ State Council, "Notice on the Next Generation Artificial Intelligence Development Plan." https://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm

⁴ Supra CRDS, JST (2024), "Science, Technology and Innovation Policy Trends in Major Countries and Regions (2024)."

⁵ Asia and Pacific Research Center, JST, "National People's Congress 2024: Understanding the content related to science and technology." https://spc.jst.go.jp/experiences/economy/economy_2418.html

⁶ Supra CRDS, JST (2024), "Science, Technology and Innovation Policy Trends in Major Countries and Regions (2024)."

⁷ Cyberspace Administration of China, "Interim Regulation on the Management of Generative AI Services. https://www.cac.gov.cn/2023-07/13/c_1690898327029107.htm

"Smart Nation" initiative released in 2014, AIrelated R&D and human resource development have also been actively promoted. Specifically, the Singapore government launched "AI Singapore (AISG)," a program for developing AI talent, in 2017, and announced the "National Artificial Intelligence Strategy (NAIS)," ¹ which aims to transform the economy by promoting the use of AI, in 2019, thereby accelerating R&D and use of AI in universities and companies, etc. In addition, through such initiatives, formation of the AI ecosystem has been advanced, with as many as 1,100 AI startup companies choosing Singapore as their base.

Moreover, in December 2023, the Singapore

government newly announced "National AI Strategy 2.0 (NAIS 2.0),"² and launched a 70 million Singapore dollar initiative for R&D of LLMs, including development of "SEA-LION,"³ the first LLM in the Southeast Asian region.⁴ SEA-LION has been built to cater to under-represented population groups and low resource languages in Southeast Asia.

Three types of SEA-LION models are currently available: a 3 billion parameter model and a 7 billion parameter model as base models, and a 7B instruct model on which instruction tuning in English and Indonesian has been performed.⁵

Table 1-3-7/AI R&D policie	es of major	countries/regi	ions (as of t	the end of I	March 2024)
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U.S.	Secured voluntary commitments from private companies about ensuring safety. In October
	2023, announced the Executive Order, and has actively promoted R&D at private companies
	and universities, while imposing certain regulations for foundation models that could pose
	serious security risks. Established the United States Artificial Intelligence Safety Institute
	(USAISI).
UK	While laying out a pro-innovation regulatory framework, actively promoted R&D at
	universities and startups, etc. In November 2023, held an "AI Safety Summit" and established
	the UK Artificial Intelligence Safety Institute (UKAISI).
EU	Adopted the "AI Act" at the European Parliament in March 2024. Implements a policy to
	categorize AI systems into risk levels, and apply regulations according to the risk level. Also
	supports R&D including the utilization of AI in other fields.
Japan	While developing the AI Guidelines for Business, supports R&D at universities, research
	institutions, and private companies including startups. Established the AI Safety Institute.

Source: Created by MEXT.

Section 2

Multilateral collaborations and cooperation regarding AI

• Organisation for Economic Co-operation and Development (OECD)

various fields such as the economy, society, and the environment in OECD countries, there is a growing concern that the unlimited use of AI

While AI has become a part of human life in

¹ Singapore Government, "Singapore National AI Strategy."

https://file.go.gov.sg/nais2019.pdf

² Singapore Government, "Singapore National AI Strategy 2.0 (NAIS 2.0)."

https://file.go.gov.sg/nais2023.pdf 3 Southeast Asian Languages In One Network

³ Southeast Asian Languages In One Network

⁴ Infocomm Media Development Authority, "Singapore pioneers \$\$70m flagship AI initiative to develop Southeast Asia's first large language model ecosystem catering to the region's diverse culture and languages." https://www.imda.gov.sg/resources/press-releases-factsheets-and-speeches/press-releases/2023/sg-to-develop-southeast-asias-first-llm-ecosystem

https://www.imda.gov.sg/resources/press-releases-factsheets-and-speeches/press-releases/2023/sg-to-develop-southeast-asias-first-llm-ecosystem AI Singapore, "SEA-LION."

could bring about various risks and uncertainty in the real world. Under such circumstances, the "OECD AI Principles"¹ were formulated in May 2019, with an aim to promote use of AI that is innovative and trustworthy and that respects human rights and democratic values. These principles were adopted as the world's first intergovernmental standard for making practical, flexible and long-term use of AI, and the contents of the OECD AI Principles were approved as the G20 AI Principles, as they are, at the G20 Osaka Summit that was held in the following month.

In 2020, the "OECD AI Policy Observatory (OECD.AI)" was established to share information on each country's AI-related initiatives. In addition to promoting the abovementioned principles, OECD.AI publishes datasets concerning AI research, data, and trends in approximately 70 countries/regions so as to enable each country to compare AI-related policies and form policies based on objective grounds.²

• The Global Partnership on Artificial Intelligence AI (GPAI)

2020, GPAI was established In as an international initiative to promote AI use that respects human rights and democratic values. GPAI is international an public-private partnership that was established to realize the development and use of "responsible AI" based on human-centric ideas. It was established as its need was advocated at the G7 Biarritz Summit held in France in August 2019. At this summit, the participants acknowledged the need to strengthen international cooperation to respect "humancentric values" in the development and use of AI and to mitigate the potential risks of AI. In response, at the G7 Science and Technology Ministers' Meeting held in May 2020, the participants reached the consensus that G7 countries should make cooperation toward establishing GPAI. After that, GPAI was formally established with a declaration for its establishment being adopted in June 2020.⁸ In November 2022, the annual meeting, GPAI Summit, was held in Tokyo, and Japan assumed the presidency from November 2022 to December 2023.

GPAI has a membership of 29 countries and regions as of March 2024, and the members share values including democracy, human rights, inclusion, diversity, and innovation in the development and use of AI.⁴ In addition, GPAI is advancing initiatives for realizing responsible development and use of AI, and it has set up working groups and implements projects on the following four themes: responsible AI, data governance, the future of work, and innovation and commercialization. It is hoped that GPAI will continue to play an active part in promoting the sound development of AI and its utilization in society.

• G7 "Hiroshima AI Process"

In 2023, Japan assumed the G7 presidency and led the international discussions in the field of AI governance. Based on the outcomes of the G7 Digital and Tech Ministers' Meeting in Takasaki, Gunma, held in April 2023 and the G7 Hiroshima Summit held in May, and in light of the need for governance of generative AI, the "Hiroshima AI Process" was launched for discussing issues including the appropriate governance, protection of intellectual property rights, promotion of transparency, measures against disinformation, and

OECD Legal Instruments, "Recommendation of the Council on Artificial Intelligence." 1 https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0449

OECD.AI, "Trends & data overview." https://oecd.ai/en/trends-and-data

MIC (2023), "White Paper on Information and Communications in Japan 2023"

https://www.soumu.go.jp/johotsusintokei/whitepaper/ja/r05/html/nd258590.html GPAI, "About GPAI." https://gpai.ai/about/

⁴

responsible use of generative AI technology. Under this framework, the G7 members have advanced discussions also in collaboration with the OECD and GPAI. Following the ministerial-level meeting of the Hiroshima AI Process held virtually in September 2023 and the multistakeholder high-level meeting held at the Internet Governance Forum 2023 in Kyoto in October, the "G7 Leaders' Statement on the Hiroshima AI Process" was issued in October, along with publication of the "Hiroshima Process International Guiding Principles for Organizations Developing Advanced AI Systems" and the "Hiroshima Process International Code of Conduct for Organizations Developing Advanced AI Systems."

Further, the G7 Digital and Tech Ministers' Meeting was held again in December 2023 based on an instruction from the G7 leaders. At the meeting, the "Hiroshima ΑI Process Comprehensive Policy Framework," including the "International Guiding Principles" and the "Code of Conduct," was agreed by the G7 Digital & Tech Ministers' Statement as the outcomes of the Hiroshima AI Process under Japan's G7 presidency, and later these outcomes were endorsed by the G7 Leaders' Statement. The key points of the Ministers' Statement are as described below.

- The "Hiroshima AI Process Comprehensive Policy Framework" consists of the following four elements:
- [i] the OECD's Report towards a G7 Common Understanding on Generative AI (exemplifying G7's common priority issues, risks, and opportunities)
- [ii] Hiroshima Process International Guiding Principles for All AI Actors and for Organizations Developing Advanced AI Systems
- [iii] Hiroshima Process International Code of Conduct for Organizations Developing

Advanced AI Systems

- [iv] Project-Based Cooperation in advancement of research that contributes to measures against disinformation, etc. (planning to promote project-based initiatives, such as advancing research of state-of-the-art technical capabilities for distinguishing AI-enabled mis/disinformation, in cooperation with international organizations including the OECD, and United Nations GPAI, Educational, Scientific and Cultural Organization (UNESCO))
- (2) Work Plan to advance Hiroshima AI Process (expanding outreach to partner governments and broadening support for the International Code of Conduct, intensifying efforts for introducing monitoring tools to ensure the implementation of the International Code of Conduct by organizations, and continuing collaboration on project-based cooperation with the OECD, GPAI and UNESCO)

Italy, that assumed the G7 presidency for 2024, expressed that it would continue to promote the "Hiroshima AI Process" launched under Japan's G7 presidency in the previous year toward promoting safe, secure, and trustworthy AI. In the Ministerial Declaration adopted at the G7 Industry, Technology and Digital Ministerial Meeting held in March 2024, the ministers acknowledged that G7 countries should remain committed to advancing the Hiroshima AI Process outcomes, including through expanding support and awareness among key partners and organizations, and welcomed actions to facilitate the dissemination, adoption, and application of the Hiroshima AI Process International Guiding Principles and the International Code of Conduct among key partner countries, including from developing countries and emerging economies, and AI organizations.

United Nations

Discussions on how to regulate or manage the development and use of AI are also under way at the United Nations. The High-Level Advisory Body on Artificial Intelligence was established in October 2023 under the initiative of the UN Secretary-General, with the objective of supporting the UN efforts toward ensuring the use of AI for the greater good of humanity. In December 2023, the advisory body published an interim report describing the results of risks, opportunities, and international governance of $AI.^1$

In addition, the United States submitted a draft resolution for the General Assembly, "Seizing the opportunities of safe, secure and trustworthy artificial intelligence systems for sustainable development," which calls on the UN Member States and stakeholders to cooperate toward realization of safe, secure, and trustworthy AI. The resolution was co-sponsored by more than 120 countries and regions, including Japan, and was adopted by consensus at the UN General Assembly in March 2024.²

¹ United Nations, "Governing AI for Humanity."

https://www.un.org/sites/un2.un.org/files/un_ai_advisory_body_governing_ai_for_humanity_interim_report.pdf United Nations, "General Assembly adopts landmark resolution on artificial intelligence."

² United Nations, General Assembly adopts landmark resolution on artificial intellihttps://news.un.org/en/story/2024/03/1147831

Column 1-3

Researcher involved in AI research

EMA Arisa

Associate Professor, Tokyo College, the University of Tokyo Institutes for Advanced Study

Doctor of Philosophy

Specialization: science and technology studies



Dr. EMA specializes in science and technology studies, which is a field of study that examines issues that arise at the interfaces between science and technology and society, including politics, economy, and culture. It is a domain that has an aspect of pointing out issues that are buried in society, and an aspect of reaching out to society to address those issues.

Dr. EMA originally entered university to study liberal arts, but while taking lectures of both liberal arts and sciences, calling herself a "one-person interdisciplinary department," she became eager to study science and technology fields more. When she was to choose a course at the end of her second year of undergraduate study, she switched to a sciences course. She was attracted to an approach of considering society and culture while studying science and technology, and came across science and technology studies. She was unsure whether to take the master's course, but she happened to meet a person who advised her that she should go on to the master's if she had an intention of coming back to academia someday, and this made her make up her mind to proceed with further study. After that, also backed by the fact of being selected as a fellow under the Research Fellowship for Young Scientists of the Japan Society for the Promotion of Science (JSPS), she decided to go on to take the doctoral course and pursue a research career.

Recently, Dr. EMA has conducted a wide range of studies on the relationship between AI and society. It is said that AI is already being used in various settings, and it has entered deeply into our society and lives without us noticing. While AI makes our lives convenient, it also raises issues such as discrimination and unfairness. Therefore, Dr. EMA is seeking an ideal governance for the safe and appropriate use of AI, and as part of such effort, she is working to create a place where citizens, companies, and researchers can discuss issues and utilization methods across barriers.

In October 2023, Dr. EMA was selected as a member of the multistakeholder High-Level Advisory Body on AI convened by the UN Secretary-General. At present, the Advisory Body is holding in-depth discussions to compile a report on international AI governance toward the Summit of the Future to be held in September 2024. Dr. EMA is participating as a researcher in the field of social sciences. She says she would like to contribute to creating an environment that facilitates multistakeholders to have discussions and examining how to have people who find it difficult to voice their opinions participate in the discussions. We asked Dr. EMA, who plays active roles on the international stage, about Japan's position and roles in the international community. "Japan is a county which can share values with both western countries and Asian countries. It has a certain amount of influence, but it does not make strong assertions, and can achieve an overall balance. Also, as many people are favorable toward Japan due to the trust that has been cultivated by our forerunners, people often say they will come if Japan holds a conference, for example. Due to these factors, I think Japan is expected to play the role of coordinating between the West and Asia," she says. As the geopolitical risks are becoming more apparent today, Japan may be expected to play an even greater role in the future.

 Council of Europe's "Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law"

Discussions on the "Framework Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law" are also advanced in the Council of Europe, which is a pan-European international organization that takes an initiative in setting standards for the international community in the fields of human rights, democracy, and the rule of law, and in which countries including Japan, the United States, Canada, and Mexico also participate as observers.