AI White Paper 2024

New Strategies in Stage II

Toward the world's most AI-friendly country

May 21, 2024

LDP Headquarters for the Promotion of Digital Society

Project Team on the Evolution and Implementation of AIs

（Ver.1.0）

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Chapter 1: Japan Facing "Stage II"

○ LDP White Paper (2023)

In the late fall of 2022, when ChatGPT first began to be widely discussed, the LDP's Project Team on the Evolution and Implementation of AIs (hereafter referred to as the **LDP AI Project Team**) recognized the overwhelming potential impact of generative AI and quickly sent out a **white paper** in April 2023, both domestically and abroad. This was the beginning of it all, the **Big Bang of AI in Japan**, so to speak.

This white paper **comprehensively recommended bold and visionary policies**, including the need for a new strategy and headquarters, strengthening of the AI development infrastructure, and legal and regulatory considerations.

One year has passed since the release of the white paper, and to date, we have received many inquiries from both domestic and international organizations, and similar strategies have been published in other countries. In addition, **most of the recommendations in the white paper have been realized**. For example, the government immediately started to establish an AI Strategy Council and an AI Strategy Team, to secure computational resources to strengthen R&D capabilities, to prepare data for learning, and to enhance model development capabilities. And Prime Minister Kishida advocated the launch of the Hiroshima AI Process and compiled international guidelines and an international code of conduct. The government is also working on the development of guidelines for AI business operators and how to ensure their implementation.

These developments are both noteworthy, as they demonstrate **both the foresight of the white paper and the speed of the government's reaction**.

Additionally, **last December, the LDP AI Project Team** issued an **urgent recommendation**. In line with this recommendation, **the government established the AI Safety Institute**. This is the third such institute to be established in the world, following the U.K. and the U.S., and the first in Asia, and is highly commendable.

○ Current view (April 2024)

The world and Japan have moved with unparalleled speed over the past year, both in the public and private sectors. As a result, the landscape today is completely different from that of a year ago—**a landscape that no one could have predicted a year ago**.

Meanwhile we are seeing the **evolution and social implementation of high-performance, large-scale, and general-purpose infrastructure models** by U.S. Big Tech and other companies are moving ahead, countries including Japan are trying to find a way to **compete in a variety of ways, including small-scale, high-performance models and combinations of multiple models.** Japan is competing with the world through the development of new models by startups, etc. and advanced research at universities and research institutes.

Open-source AI has emerged, and while some have voiced concerns about security, it is now **possible for anyone to develop AI**, with advantages such as allowing diverse entities to participate in development.

In addition to text, the variety of data handled by generative AI is becoming increasingly **multimodal,** including images, video, audio, music, and program codes. There are also signs of the spread of "**AI for Science**,**"** in which AI is used for drug discovery, materials development, and other research, and "**AI for ALL**," in which AI is introduced into various fields, such as the use of AI in robots.

The use of AI is also advancing in administrative services of central and local government, customer services in various institutions such as financial and educational areas, and improvement of efficiency of office work. **LDP were among the first to develop generative AI on a trial basis themselves and are using it via an empirical approach**.

On the other hand, as the performance of generative AI improves and its use expands, **concerns over a variety of risks are growing**, including the sophistication of cyber-attacks and frauds, dissemination of disinformation and misinformation, AI hallucinations, copyright and intellectual property infringement, and leakage of personal information. Discussions about security, prejudice, discrimination, and other risks have also become more active. This year is a global "election year," and **AI-based election interference** is also a global concern.

With regard to responses to risks, various approaches can be seen, including by the **EU**, **which is moving forward with comprehensive laws and regulations centered on respect for human rights and elimination of discrimination and prejudice,** and the **U.S., which is responding with existing laws and regulations, mainly from a security perspective** in addition to voluntary commitments by major AI developers.

○ Stage II Strategy: Become the world's most AI-friendly country

Just as the scene today is quite different from the scene a year ago, the scene a year from now will be quite different from the scene today. We are now at the **gateway of a "Stage II" that no one can predict**: more and more people will be involved in the development and use of AI, and in Stage II, the world may move more dynamically than ever before in all aspects of technology, services, utilization, and regulation.

In an environment of rapid change and uncertainty, we must strengthen our industrial competitiveness while protecting the safety and security of citizens, and contribute to building a better world at the same time. In order to develop such a strategy, it is important to engage in **dialogue with diverse stakeholders**, and we have had frank discussions with more than 80 experts in various fields over the past year, including Sam Altman (OpenAI CEO), Jensen Huang (NVIDIA CEO), and Prof. Yoshua Bengio (University of Montreal). For more details, please refer to the attached document (See Appendix 1 for details of our meetings).

In Stage II, Japan should aim to become the **“world's most AI-friendly country.”** While a lot of movements are observed in various parts of the world regarding AI development and regulation due to political and economic considerations, **Japan** should **aim to be the country with the best understanding of AI and the easiest implementation of AI in the world.** And it will **maximize profits** while **minimizing risks for citizens**. In addition, Japan should show **even greater** leadership **internationally, based on the achievements of the Hiroshima AI process**.

In order to become the world's most AI-friendly country, **a new strategy** is needed **both in terms of strengthening competitiveness and ensuring safety**. To **strengthen competitiveness, it is** necessary to simultaneously create **innovations on both sides of AI R&D and utilization. Ensuring safety is mutually complementary to enhancing competitiveness, and it is** important to **proceed in an integrated manner**.

Since AI evolves through training data sets, data strategy is critical. **AI will achieve healthy development** when **beneficial data** for business and social issues solution **is coupled with the free global distribution of data while ensuring trust** regarding personal information protection, security, intellectual property rights, etc.

In addition, since AI is used in various fields, it is **also** important to **collaborate with strategies and policies in various fields and to make effective use of various measures,** for example, startups, semiconductors, robotics, etc.

As policy areas related to AI are expected to continue to expand, the **headquarter function of government** needs to be **strengthened**.

Based on the above, we propose the following recommendations.

- The public and private sectors should work together to create the "**world's most AI-friendly country**," i.e., the country with the best understanding of AI and with the most active R&D and implementation of AI in the world.
- The public and private sectors should work together to **minimize AI risks to citizens while maximizing benefits**.
- The public and private sectors should work together to **promote the enhancement of competitiveness and safety** in a **mutually complementary relationship.**
- Japan should **continue to lead international rulemaking** on safe, secure, and reliable AI, **based on the achievements of the Hiroshima AI Process.**
- **In addition**, Japan should **strengthen its cooperative relationships with Asian countries and the Global South, and demonstrate strong leadership in the world for promoting international joint research and utilization,** including Japan-U.S. joint research on AI.
- The government should **enhance the secretariat function to support the** "AI Strategy Team" and the "AI International Strategy Promotion Team," which are the headquarters for AI policy.

○ Strategies for strengthening Japan's competitiveness using AI (Chapter 2)

To enhance Japan's competitiveness, it is important to have an ecosystem that **promotes enhancement of AI R&D capabilities and driving of AI utilization in an integrated manner from global perspectives,** based on **advanced human resources and infrastructure** (computational infrastructure, communication infrastructure, etc.). Strategies to build and promote described above are explained in Chapter 2.

Players for AI strategies are diverse in the public and private sectors.

The government has the role of promoting **environmental arrangement, development of human resource, and international cooperation so that diverse companies can increase their competitiveness and find their own ways to win in AI technology area**.

Since AI technologies and surrounding environments continue to change rapidly, it is necessary **for each player to draw up multiple scenarios that** allow them to respond immediately to various possibilities. It is important to be flexible enough **to take advantage of environmental changes rather than succumb to them**.

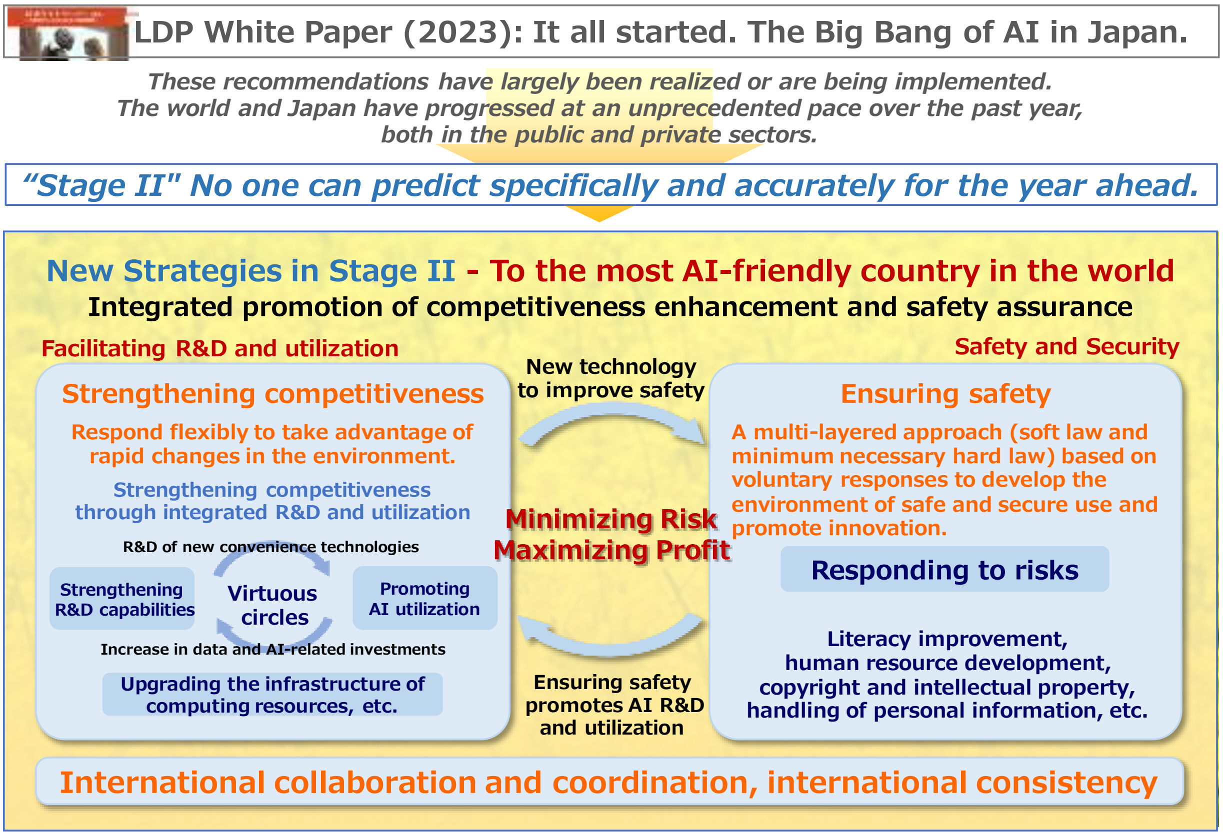
Strategies for Ensuring Safety (Chapter 3)

To mitigate AI risks, **we need to appropriately develop, provide, and use AI technologies**. Considering technological change rate, complexity, and diversity, etc., firstly, **all people involved in AI** need to **increase their AI literacy and follow a certain level of discipline (soft law) voluntarily.**

In addition, from the perspective of public safety, security, etc., it is **necessary to consider minimum necessary measures through legal regulations (hard law) with regard to AI with extremely high risks**. The WG volunteers reported a draft of a legal framework at this PT. In the future, it will be necessary to take measures based on this draft as well as trends in other countries.

Discipline and regulation are **not opposed to innovation, but** also **promote AI utilization and R&D by creating a safe and secure environment**. Chapter 3 describes such strategies for ensuring safety of AI.

Skeleton of AI White Paper 2024



(See Appendix 2 for the framework and main recommendations of this White Paper.)

Chapter 2:

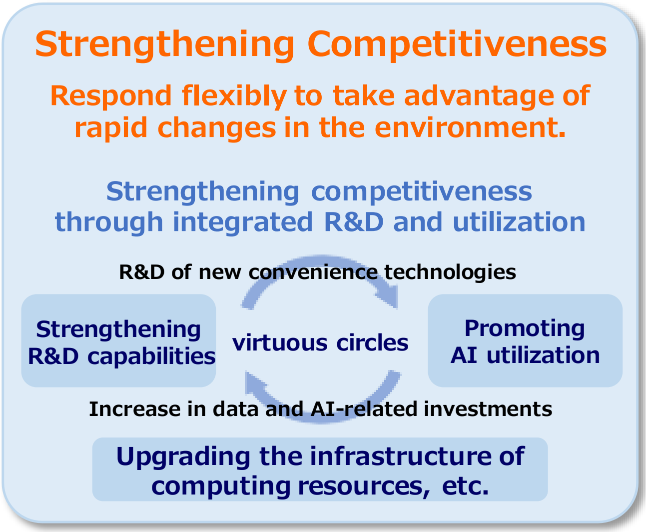
Strategies for strengthening Japan's competitiveness using AI:

Flexibility to take advantage of rapid environmental changes

Players in AI strategy are diverse across public and private sectors.

The government will play a role in **environmental arrangement, fostering human resources, and international cooperation so that companies can increase their competitiveness in AI and find their own ways to win.**

In order to acquire high-performance AI to **strengthen the competitiveness of both those who utilize AI and those who develop and provide AI, it is** important to **coordinate computational infrastructure, data, and AI models.** (See Appendix 3 for an overall picture of computational resources, data, and AI models.) Therefore, it is important for public and private sectors to work together and build an ecosystem to **promote the utilization of AI, strengthen AI R&D capabilities, and enhance infrastructure (computational infrastructure, communication infrastructure, etc.)**.



In particular, it is important to focus on areas where **Japan can take advantage of its strengths,** such as automobiles, robotics, and materials development, as well as **important areas for security,** such as medicine, finance, and agriculture, and to contribute to **solving social issues both domestically and internationally.**

To achieve these targets, it is necessary to **observe carefully and find environmental changes, to forecast the future** as accurately as possible, and to respond accordingly. Even so, the environment surrounding AI is changing at an incredible pace. Therefore, **it is necessary to be flexible enough to drastically change strategies occasionally**. **Rather than succumbing to environmental changes, we must take advantage of them.**

Based on the above view, we propose the following recommendations to promote AI utilization, strengthen AI R&D capabilities, and enhance infrastructure.

○ Promoting utilization

In Japan, utilization of generative AI by organizations and individuals is expanding, mainly for text summarization and idea generation. However, utilization by organizations faces challenges such as: "We do not know what we can do with AI"; "We do not have the structure for AI"; "We are concerned about risks and regulatory conflicts"; and "AI services are still insufficient.” If this situation continues, there are **concerns that many organizations will be late to the game, as was the case with DX and cloud utilization**.

In order to release AI’s potential, respond to labor shortages, etc., and strengthen the competitiveness of a wide range of industries through utilization of AI, it is necessary to solve the above issues. **Active promotion of AI utilization by government will be effective as one of the leading examples**.

Acquiring data and understanding demands for AI through AI utilization in each field is also necessary for strengthening R&D capabilities, which will be discussed later.

Therefore, we propose the following recommendations.

- **Sharing advanced use-cases of AI and quantitative and qualitative impacts in public and private sectors**.
- In particular, **organizations for public administration** should **take the initiative in** hosting hackathons and ideathons to gather groundbreaking ideas. In addition, in order to advance further AI utilization in organizations for public administration, **new guidelines for handling confidential**

information should be established. Furthermore, a team for accumulating use-cases and supporting the spreading of use-cases to governments including local authorities should be strengthened.

・**The establishment of a Chief AI Officer (CAIO)** to lead the introduction of AI, adjustment of personnel systems, and renewal of legacy systems, through rating DX issues and trinity labor market reforms, etc.

・To support human resources who are striving to acquire skills for AI utilization, the following measures should be promoted in various industries: **disseminating and operating guidelines for AI skills**, **developing and sharing educational contents**, and visualization of AI skills.

・**The "AI Guidelines for Business" shall be widely disseminated to promote appropriate utilization of AI**, so that business operators can promptly respond to environmental changes on a risk-based basis. In addition, good practices for mitigating risks should be accumulated and shared.

・ The government should **clarify and disseminate** the operation of regulations that require attention in relation to AI, such as the Personal Information Protection Law, the relationship with the Copyright Act, the Legal, and the areas where operator's service provision is restricted by various industry laws, including in the medical field, **so that operators can take on the challenge without atrophy**. In addition, a hearing mechanism should be established to speedily respond to requests and inquiries from business operators. If necessary, the government should further clarify regulations by promoting **dialogue among related actors**, and encourage innovation without unnecessary business risks.

・In the act of reviewing analog regulations based on digital principles, public and private sectors should utilize trial environments such as sandboxes, etc., as necessary, in order to build **AI compliant regulations**.

・In order to **promote the development and utilization of new AI applications, the government should add AI service to the target of "IT introduction subsidy for small business,"** provide an **"innovation box taxation system"** (tax incentives for providing AI-related software, etc.), host nationwide **hackathons and ideathons**, maintain and update sector-specific data that is in demand, etc.

○ Strengthening R&D capabilities

AI is still in the early days. Considering its potential and risks, it is important to develop **AI that is suitable for utilization in Japan** (Japanese language, culture, business practices, etc.), **develop AI that can be deployed globally in fields that represent Japan's strengths**, **foster human resources with strong research skills**, and **manage risks, etc.** by **strengthening R&D capabilities**. In addition, as a country with AI R&D capabilities, Japan should **actively contribute** to the construction of a digital infrastructure in **Global South**, especially in Asia, where AI will be explosively utilized in the near future.

Conversely, without R&D capabilities, delays in AI utilization could lead to a **decline of competitiveness in a wide range of industries**, loss of competitiveness in fields where Japan has advantages, missed opportunities to launch AI-providing business where significant growth is expected, **decline of academic community**, and **black box risks**.

It is a positive sign that over the past year, several large Japanese companies, start-ups, and research institutes have developed and announced their own LLMs. In addition to simply increasing the size of model parameters to improve performance, various directions are being pursued, including **the combination of smaller models and multimodal models.**

It is important to develop **various AI models and systems** based on the ingenuity of the private sector, **while trying to catch up with the large-scale foundation models that the U.S. is ahead of.** In addition, government-led development is also necessary for immature but important and impactful technologies. In such cases, it is important to solve institutional bottlenecks to enable stable and predictable R&D as well as flexible R&D in response to rapid technological trend shifts. Competition in AI is rapidly intensifying and there is little time left.

With Japan's rapidly declining birthrate and aging population, **innovative AI robots** and other technologies are expected to be utilized to address labor shortages. Various problems need to be overcome for practical applications.

For the development of AI models, a large-scale, high-performance computing infrastructure and a large amount of diverse, high-quality data are important. There are various types of large-scale, high-performance computing platforms, but for AI, it is important to have not only CPUs but also semiconductors suitable for AI computing, such as GPUs.

In addition, in considering benefits of the development of AI models, it is important to promote the utilization of data according to its characteristics, such as public data in the internet, data in the public sector, and data in the private sector. As the advent of "data-driven society" has been pointed out, and the recent impact of generated AI emphasizes the importance of data, we would like to reiterate how important it is for data owners to utilize their data.

Therefore, we propose the following recommendations.

- **Public and private sectors should develop and improve computing infrastructure for AI**, which is indispensable for AI development but for which the global supply-demand balance is tight, so that a wide range of developers can use it.
- **It is important to establish a new plan to provide and manage data in public institutions** on a sustainable basis, so that data in various public institutions can be utilized for AI development. In addition, **high-quality Japanese-language data** collected from the internet should be **developed and accumulated** in order to provide for appropriate developers.
- To develop competitive AI in specific fields by **utilizing private-sector data**, public and private sectors should work together to share case studies on compensations and other measures to solve bottlenecks in cooperation between AI developers and data holders, and to develop new useful and fundamental data for AI development.
- In particular, in fields where **Japan can take advantage of its strengths,** such as automobiles, robotics, and materials development, as well as in fields that are **also important for security,** such as medicine, finance, and agriculture, a wide range of entities should participate in the **development and utilization of AI** in order to ensure the competitiveness and autonomy of industries. Therefore, **synergistic efforts regarding data (collection, maintenance, and updating) and AI (development and utilization)** should be implemented by public and private sectors.
- From the perspective of **contributing to the Global South,** public and private sectors in Japan should also consider collecting data on each country's

unique language and culture, and giving the trained AI back to the respective countries as digital infrastructures to support various applications.

・Public and private sectors should promote community activities, such as sharing know-how among AI developers, **interactions with global tech companies**, and matching AI developers with organizations that aspire to full-scale utilization of AI.

・ With regard to the foundation models, the government should support AI development based on domestic industry-academia collaboration in order to improve AI development capability. In addition, the government should provide focused support for startups that are working to improve the efficiency and accuracy of AI models, to make AI models multimodal, and to mitigate risks. Therefore, based on the startup-related discussions※ /suggestions in the LDP, **the government should develop a support program targeting AI startups.**

※Support for university-based AI startups, development of human resources with expertise in both AI and application areas, and expansion of AI research using hometown tax donation programs.

・In order to solve social issues such as labor shortages, public and private sectors should aggressively promote **R&D of innovative AI robots** such as flexible robot response to changing environments**,** which cannot be achieved with current technologies.

・Public and private sectors should **accelerate AI for Science** by leveraging Japan's strengths in the fields of medicine, drug discovery, materials development, and so on. It’s also important to establish **industry-academia collaboration** systems that leverage the potential of universities, national research institutes, etc., as well as **R&D frameworks with strong collaboration among United States and other friendly nations.**

・To dramatically enhance the competitiveness of cutting-edge AI, including AI for Science, the government should establish a **data infrastructure at national research institutes, etc.**, as well as take measures to allow the use of flexible computing infrastructures in response to technological progress, in order to enable stable and flexible R&D. It’s important to allow research institutes to pay cloud usage fees over multiple fiscal years smoothly.

・The Government of Japan should strengthen the development of internationally competitive human resources through supporting **young**

researchers and postdoctoral fellows who conduct research in AI and other ICT fields at universities and other research institutions by providing them with **more generous financial support so that they can concentrate on R&D, etc.** and by supporting the activities of young people who have original ideas, etc. and are willing to lead businesses and solve social issues. In addition, the government should strengthen the development and support of top-level researchers who can **attract high-level research talent from around the world.**

○ Enhancing infrastructure

As to the infrastructure for AI, global demand for servers and storages is expected to increase at an average annual rate of 12.9% until 2030, while Japan's demands are expected to increase at an average annual rate of 15.8%, reaching approximately 1 trillion yen in a single year in 2030. Based on the explosive increase in data processing, required processing time, and power constraints, the **computing infrastructure is expected to become larger and more distributed along with the communication infrastructure, in the form of domestic central data centers, distributed edge locations, and countless terminals.**

In this context, enhanced computing and communication infrastructures are expected to fulfill various characteristics such as described below:

- More energy-efficient infrastructures to cope with increasing power consumption
- Faster information processing
- Advanced utilization including combination of AI and simulations in scientific research fields
- Realization of ultra-large-capacity, highly reliable, and low-latency communication networks that are expected to be foundational to support distributed infrastructure functions and collaboration among AIs

The development of such infrastructures, and R&D for AI utilization and sophistication, will lead to the construction of a **robust digital industrial foundation in the future, including semiconductors,** which have become a global strategic item.

Computing infrastructure for processing and storing data needs **to be developed domestically** due to the need for safe management of important data, improvement of service quality such as processing time (processing close to users), and stable supply in case of emergency. In addition, considering that advanced knowledge and expertise are required to operate computing infrastructures, and the progress as social infrastructure and future potential are expected, it is also necessary to **secure experts and ensure autonomy without excessive dependence on foreign countries**.

Therefore, we propose following recommendations:

- The government should provide **financial support, etc** and **encourage private investment** so that the country can secure data centers and other infrastructure to become the most AI-friendly country in the world. In this way, the government should establish the foundation for strengthening the competitiveness of AI utilization, AI development, and AI provision.
- In order to build a robust digital industrial foundation, in addition to the above infrastructure development, the government should establish **industry-academia collaboration** systems, support R&D, and foster highly trained human resources, **related to the design, development, and operation of new computer systems, network systems, AI semiconductors, and other key devices that** aim to reduce power consumption and improve sophistication.
- The government should expand and enhance the " AI Bridging Cloud Infrastructure (ABCI)" and begin to develop the next generation of "Fugaku" in a form that has AI performance as well as CPU-based simulation performance, to achieve a **world-class AI computing environment** that meets the demands for computation with a sophisticated combination of AI and simulation.
- **The government should maximize its effort to construct environments for securing sufficient electricity** (especially decarbonized electricity) needed for future infrastructure development in a **prompt and inexpensive manner** within various constraints of Japan.

Chapter 3: Strategies for Ensuring Safety

With the proliferation of generative AI, risks of inaccuracy of the output of generative AI (bias, hallucination, etc.), risks of inappropriate output being elicited beyond the developer's settings (prompt injection, jailbreak, etc.), risks of malicious attacks (data poisoning, cyber attack, etc.), the risk of fake images, fake videos, and fake audio being misused for fraud, etc., is also becoming apparent.

In addition, concerns about infringement of copyrights and other intellectual property, systemic risks in areas where AI malfunctions have critical impacts such as finance, medicine, and transport, and concerns about the increase in unemployment and AI addiction that will accompany the introduction of AI are becoming more apparent.

The world’s experts are already sounding the alarm about the possibility of a future AGI (Artificial General Intelligence), wherein humans will no longer be able to control AI and destructive events will occur.

Under these circumstances, concern about risk should not be a factor that deters the utilization and development of AI. It is important to **minimize risk and maximize profits by working to create innovation without excessive delegation in a safe and secure environment.**

Risks must be addressed **with agility, taking the best possible steps in a timely and thorough manner.** This ensures the world's most rational governance with a balance between AI discipline and innovation creation in Japan.

In response to the rapid changes in and diversity of AI technologies, a **rigid institutional response may fall behind**. Therefore, in Japan, the basic approach is for **businesses and others to act voluntarily based on the guidelines (soft law)**. On the other hand, it is necessary to develop a safe and secure environment and encourage innovation through **a flexible, multi-layered approach that also applies minimum legal requirements (hard law) as necessary**, taking into account the magnitude of the risks and trends in other countries**.**

With regard to **countermeasures against disinformation and misinformation**, which has become a growing global concern with the advent of generative AI, **countermeasure technologies are expected to become more sophisticated and practical.** In addition, it is necessary to promote countermeasures not only for **AI developers, providers, and users, but also for online platform providers and others.**

Regarding the relationship between AI and intellectual property such as copyright, it is also necessary to **organize and disseminate legal concepts, communicate among related parties, and develop related technologies.**

The goal is to make Japan the **most AI-friendly** country **in the world, with the best balance of rational discipline and innovation promotion**, and to attract the **best talent and** investment from **around the world**.

○ Appropriate Governance

AI governance (there are two types of governance: governance to maintain the safety, reliability, etc. of AI developed by AI developers, and governance to ensure that AI providers, users, etc. provide and use AI appropriately) is being addressed rapidly in countries and regions around the world. In the **EU,** a **comprehensive bill on AI** (AI Act) was adopted at the plenary session of the European Parliament in March this year and is scheduled to be enacted after being approved by the EU Council. . In the **U.S., voluntary commitments were announced by major developers** in July and September last year, a **presidential decree** was issued in October, and related ministries and agencies are now taking actions. In **China**, "**the Interim Measures for the Management of Generated AI Services"** was enacted in August last year.

Last November, the **"AI Safety Summit" was held in the U.K.,** and in conjunction with the summit, the U.S. and the U.K. announced the establishment of the **AI Safety Institute (AISI),** giving a glimpse of the **competition for leading AI safety.**

In this context, **Japan took the lead in global rule-making by launching the Hiroshima AI Process,** and **the world's first comprehensive policy framework** was agreed in December last year. Such a Japan-led international initiative is highly commendable.

The choice of system, such as whether to comply with the international guidelines and international code of conduct of the Hiroshima AI Process through legislation or practice through self-regulation, is left to each country. Japan has chosen to take action **based on the guidelines, which are risk-based and can respond quickly and flexibly to changes in technology and diversity of risks,**

etc. Based on the results of public comments, **AI Guidelines for Business Ver 1.0 on the development, provision, and use of AI** was developed and published. It is important that the AI Guidelines for Business are disseminated to various sectors, and that each industry take further actions based on them.

The basis of Japan's strategy is for businesses, etc. to voluntarily and continuously assess and reduce risks based on the AI Guidelines for Businesses, etc. The government and businesses, etc. must communicate closely and work together effectively to promote social implementation of the Guidelines and other risk reduction measures. As AI is playing an increasingly important role in society, there are situations where **we must avoid AI becoming a black box**. Regarding the development of **AI that poses a risk to the safety and security of the public**, **minimum legal obligations (hard law) regarding safety and transparency are also necessary,** referring to the legal systems in Europe and the United States. In February of this year, **volunteers of the PT's WG proposed a tentative "Basic Law for the Promotion of Responsible AI (tentative name)"** (See Attachment 4 for the outline of the "Basic Law for Responsible AI Promotion (tentative name).

Therefore, we recommend the following

・**The basis of AI governance in Japan is that operators and others voluntarily and continuously assess and reduce risks in accordance with the AI Guidelines for Business, etc.** In a wide range of business sectors, **efforts shall be promoted to disseminate the guidelines, and to implement and execute specific measures in accordance with each field.** In addition, **constant updates should be made** in response to changes in technology and business.

・The government should **develop the minimum necessary legal framework for AI models with extremely high risks,** based on the concept of the **"Basic Law for Promotion of Responsible AI (tentative name)" by the volunteers of the PT's WG**, etc.

・The government should **fully consider and verify** the subject matter of the legal framework and the content of legal obligations, taking into account overseas trends and discussions in the Hiroshima AI Process, and **seek clarification**.

・With respect to areas such as medical, financial, and automated driving, where the impact of AI malfunction or systemic risk is likely to be significant, the government should give **due consideration to the need to review existing business laws and regulations.**

○ Countermeasures against dis/misinformation using generative AI

With the increasing performance of generative AI, it has become easy to create images and videos that closely resemble cityscapes, landscapes, and famous people as if they were real. Such content, whether intentional or unintentional, is now being widely disseminated on the Internet.

Although progress has been made on the AI model side, and safeguard measures have been put in place to prevent illegal output, such as the production of guns, explosives, and biological and chemical weapons, as well as their use in terrorism, the model still **struggles with malicious uses** such as prompt injection, etc.

Efforts are also underway to clearly indicate that the content is AI-generated when generating and distributing images, videos, etc. using generative AI. **Technology to indicate the source and creator of content is also being developed and demonstrated.** Once disinformation is circulated and spreads it is difficult to recover it, but there are **also technologies and mechanisms to determine the authenticity of information circulating on the Internet.** Disinformation in situations such as disasters and accidents can be life-threatening. Countermeasures against disinformation are an urgent issue.

In order to address these issues, efforts to improve literacy will become even more important, not only for the businesses involved, but also for each and every user of both receivers and senders of information, of all ages and positions, to have accurate knowledge of how generated AI works and how to handle disinformation or misinformation generated by AI, and to act responsibly. It is becoming more and more important.

Although not limited to AI generated products, the **negative impact of false and misinformation on elections, the foundation of democracy**, must also be taken seriously. This year is a global "election year," and **AI-based election interference** is also a global concern.

Therefore, we recommend the following:

・The government should work on the necessary institutional arrangements to **speed up the deletion of illegal (rights-infringing) information**, including measures to deal with spoofed videos generated using generative AI, and to make the **operational status of platforms transparent**.

・With regard to the online distribution of dis/misinformation using generated AI, the government should examine, consider **comprehensive countermeasures,** including institutional measures, and compile them by this summer, and promote necessary measures.

・From the viewpoint of **dealing with technology**, the public and private sectors should actively engage in the **development and demonstration of technologies** to discriminate AI-generated content (images, videos, etc.) circulating on the Internet.

・**Promote literacy** and **fact-checking among a wide range of people,** from children to the elderly, through public-private partnerships.

・In order to **appropriately address the negative impact of AI on elections,** the concerned parties should **implement efforts similar to the** "Tech Accord to Combat Deceptive Use of AI in 2024 Elections" (**Munich Accord**, February 2024) by **20 global companies in Japan.**

○ Further efforts to ensure the safety of AI

In order to ensure the safety of AI, it is important to study evaluation methods, etc. with international consistency, and **expectations are high for the AI Safety Institute (AISI),** which was established after the U.K. and the U.S.

While we greatly appreciate the prompt launch of the AISI in Japan, it is necessary to **breathe life into the AISI and accelerate international collaboration and operations in earnest** through the cooperation of related organizations and the **development of necessary systems, including the securing of expert personnel**.

In addition, **basic and fundamental R&D to enhance the safety of AI** itself is also important to both ensure safety and promote innovation.

Furthermore, it is also important to nurture **the creation of diverse AI**

services by **appropriately promoting the use of data while giving due consideration to the protection of personal information and privacy**. At the same time, it is important to promote the embodiment of Data Free Flow with Trust (DFFT) in a form appropriate for "Stage II," in which various AI-related data can freely come and go internationally, while firmly ensuring trust in privacy and security for the development and application of AI.

Therefore, we recommend the following:

- Establish a **high-level network of Japanese AISIs and AISIs with other countries**, etc., for international coordination to ensure the safety of AI.
- AISI shall take the following actions in order to play a role as **a nodal point in Japan** regarding the safety assessment of AI.
  - **Investigations, standards, etc. necessary for AI safety assessment,** including **checking tools and red teaming test implementation methods,** etc.
  - **Securing and fostering a wide range of expert human resources in** security, cyber security, AI technology, etc., in cooperation with related organizations, **and consolidating and providing advanced technical knowledge,** including the latest trends in domestic and international research and international standardization of AI safety, etc.
  - **Production of documents, teaching materials, etc. to contribute to the development of human resources (CAIO, etc.) who can appropriately promote AI utilization by various organizations in the public and private sectors.**
  - **Necessary consideration of the nature of audits (third-party certification) should be conducted**, with due attention to international harmonization.
- The government should **secure the necessary budget and personnel to** support the above efforts by AISI.
- The public and private sectors should promote cutting-edge R&D on exploitation of AI vulnerabilities, research and development against attacks to embed vulnerabilities in AI, and technologies that use external knowledge such as RAG (Retrieval-Augmented Generation) to prevent hallucination.
- To promote the development of a secure and high-performing AI field by the

public and private sectors through technologies to develop new AI models with enhanced privacy protection (e.g., through the use of PETs: Privacy Enhancing Technologies).

・ In order to create an environment in which all citizens can enjoy diverse and attractive AI services in a safe and secure manner, the government should continue to clarify the content of regulations, etc., while appropriately protecting personal information, to avoid excessive delegation.

○ Relationship with intellectual property such as copyright

Regarding the relationship between AI and copyright, **the Copyright subdivision of the Cultural Council** compiled the “**General Understanding on AI and Copyright in Japan,"** which organizes its views on concerns about the AI development and training stage, generation and utilization stage, and the copyrightability of AI-generated material.

In addition, the **Study Group on Intellectual Proerty Rights in the AI Era** has presented a "Draft Interim Report" on the relationship with intellectual property (designs, trademarks, and unfair competition prevention law), including those other than copyright act, **how to deal with technology, and how compensation should be returned through contracts**.

It is highly commendable that these discussions were conducted vigorously and openly in a short period of time, and that the direction was set to **organize and clarify interpretations based on laws and regulations, maintain the current legal system**, and continue to **exchange opinions**, etc. **with multi-stakeholders in the** future. It is also highly commendable that the parties discussed the direction of agile efforts by AI providers and other entities to realize an **ecosystem where the progress of generative AI technologies and appropriate protection of intellectual property rights are compatible**, **while combining legal, technological, and contractual means**. In the future, it is **necessary to continue to take agile actions to** foster an appropriate environment for the use of AI, taking into account technological progress and other factors.

Therefore, we recommend the following:

- The government should respect **intellectual property rights such as copyright, while taking actions in line with the AI era and promoting appropriate AI utilization**.
- In particular, the government should promote awareness and awareness-raising of the "General Understanding on AI and Copyright in Japan" and the "Interim Summary" of the Study Group on Intellectual Property Rights in the AI Era, as well as promote mutual understanding through communication among the parties concerned.

Appendix 1

Project Team on the Evolution and Implementation of AI Held (since April 2023)

No	Date and Time	agenda	announcer
	Year 2023		
1	April 10	AI utilization such as ChatGPT	・Sam Altman, CEO, OpenAI, Inc.
2	May 11	The Evolution of Language Translation AI	・DeepL GmbH
		AI-related points in the Ministerial Declaration of the G7 Digital and Technology Ministerial Meeting	・Ministry of Internal Affairs and Communications
		About the AI Strategy Council	・Cabinet Office
3	May 25	Regulation in the New Era of AI	・The Software Alliance (BSA)
		Report on the G7 Hiroshima Summit (AI-related)	・Ministry of Internal Affairs and Communications ・Ministry of Foreign Affairs ・Digital Agency ・Ministry of Economy, Trade and Industry
4	June 1	AI Applications in the Private Sector	・Panasonic Holdings Co. ・Bain & Company, Inc.
5	June 7	AI Technology and Disinformation Measures	・Shinichi Yamaguchi, Associate Professor, Center for Global Communication, International University of Japan ・xID Corporation ・Adobe Corporation
6	June 9	Data Use in AI: Privacy and Data Bias	・Personal Information Protection Committee ・National Diet Library ・National Archives of Japan
7	June 22.	Use of Generative AI, etc. in Municipal Affairs	・Yokosuka City ・THE GUILD Co.
8	July 18	Overview of the Hiroshima AI process and the way forward	・Ministry of Internal Affairs and Communications
		The Latest Trends in AI Risk and Third-Party Certification	・Robust Intelligence, Inc.

9	July 27	Challenges in Securing Computational Resources to Support the Development of AI	・Ministry of Economy, Trade and Industry ・Amazon Web Services Japan G.K. ・Microsoft Japan Co.
10	September 7	LLM Initiatives in the Private Sector	・Meta Platforms, Inc. ・NEC Corporation ・ABEJA Corporation
11	September 27	AI Regulations in Each Country	・International Institute for Social and Economic Research, Inc. ・Nomura Research Institute, Ltd.
12	October 10	Google's Responsible AI Initiatives	・Google Japan G.K.
13	November 8	Hiroshima AI Process and Future Plans	・Ministry of Internal Affairs and Communications
		Presidential Decrees in the United States	・Cabinet Office
14	November 17	AI Model Development Support	・Ministry of Economy, Trade and Industry
		AI Model Development	・Softbank Corporation ・Nippon Telegraph and Telephone Corporation (NTT)
15	November 22	AI-related economic measures (supplementary budget) and action plan to promote the provision of AI learning data	・Cabinet Office
		Examples of Generative AI Applications within AI-Related Agencies	・Digital Agency ・Ministry of Economy, Trade and Industry ・Ministry of Internal Affairs and Communications ・Ministry of Agriculture, Forestry and Fisheries
16	November 28	Japan's Winning Position in the World	・President Joichi Ito, Chiba Institute of Technology ・Graduate School of Engineering, ・The University of Tokyo Professor Yutaka Matsuo
17	November 29	Initiatives for various AI services for client companies	・Salesforce, Inc.
		UK "Guidelines for the Development of Secure AI Systems	・Cabinet Office ・Cabinet Cyber Security Center
18	December 4	NVIDIA's AI Strategy	・CEO, NVIDIA Corporation Jensen Hwang.

19	December 7	Initiatives of Municipalities to Utilize Generative AI	・Osaka City
		Social Transformation in the Age of Generative AI	・Grapher Corporation
		LDP proposal submission to the Hiroshima AI Process Summary of Results of the G7 Digital and Technology Ministerial Meeting	・Ministry of Internal Affairs and Communications
	Year 2024		
20	January 26	AI Guidelines for Business	・Ministry of Internal Affairs and Communications ・Ministry of Economy, Trade and Industry
		Provision of NICT's linguistic data for AI learning	・Ministry of Internal Affairs and Communications
		AI Guidelines for Business Safety Institute	・Cabinet Office
21	January 30	Overview of the latest products and services, examples of utilization and future directions of development	・Google Cloud Japan, LLC. ・IBM Japan, Ltd. ・Preferred Elements, Inc.
22	January 31	Information Laws in Western Countries on AI	・Hitotsubashi University Graduate School of Law Professor Naoto Ikkai
		Trends in AI in Other Countries and Overall Regulations	・Cabinet Office
23	February 8	Overview of the latest products and services, examples of utilization and future directions of development (2)	・Amazon Web Services Japan G.K. ・OpenAI, Inc.
24	February 16	Draft of the Basic Law for the Promotion of Responsible AI (tentative)	・AIPT Volunteer WG (Keiji Tonomura, Attorney at Law, Jun Okada, Attorney at Law, Naoto Ikkai is a professor at Hitotsubashi University, Dashing Maruta, Attorney-at-Law, Masaharu Koyano, Attorney at Law)
25	February 21	AI Governance	・AI Governance Association (Yukito Oshiba, Hiroki Habuka, Masashi Ikutame)

26	February 29	The latest R&D trends in AI and Japan's strategy in light of future trends in AI technology, etc.	・Professor Naokan Okazaki, Department of Information Engineering, School of Information Science and Technology, Tokyo Institute of Technology ・Director, National Institute of Informatics Yoshio Kurohashi ・RIKEN AIP Center Masashi Sugiyama, Director of the Center
27	March 1	Computational Resources and Other Initiatives Related to AI	・National Institute of Advanced Industrial Science and Technology (AIST) Junichi Tsujii Fellow ・Sakura Internet, Inc. ・Satoshi Matsuoka, Director, RIKEN Center for Computational Science (R-CCS)
28	March 5	Promotion of Private Sector Use of AI in the Finance and Insurance Industries	・Mizuho Financial Group, Inc. ・The Bank of Tokyo-Mitsubishi UFJ, Ltd. ・Meiji Yasuda Life Insurance Company ・Tokio Marine & Nichido Fire Insurance Co.
29	March 7	Government Policy for Advanced AI Systems	・Graduate School of Engineering, The University of Tokyo Professor Yutaka Matsuo ・University of Montreal Professor Joshua Bengio
30	March 8	Use of AI in the Private Sector	・Benesse Corporation, Generative AI Japan ・Degas Corporation
31	March 13	Countermeasures Against Disinformation	・Fujitsu Ltd. Fujitsu R&D ・Isao Echizen, Research Director and Professor, National Institute of Informatics
		Personal Information Protection and Rights in AI Data	・Personal Information Protection Commission ・Agency for Cultural Affairs
		About AI Operator Guidelines	・Ministry of Internal Affairs and Communications

			・Ministry of Economy, Trade and Industry
32	March 14	Introduction of AI in Local Governments	・Nishikawa Town ・AI Governance Municipal Consortium
33	March 21	Status of AI-related studies in Europe (Report)	・Cabinet Office ・Ministry of Foreign Affairs
		Use of AI in the Private Sector	・Deloitte Tohmatsu Consulting LLC ・Lawyers.com, Inc. ・CoeFont Inc.
34	April 10	Status report of AI White Paper 2023	・Cabinet Office
		Draft of AI White Paper 2024	

Skeleton of AI White Paper 2024

LDP White Paper (2023): It all started. The Big Bang of AI in Japan.

These recommendations have largely been realized or are being implemented.
The world and Japan have progressed at an unprecedented pace over the past year, both in the public and private sectors.

"Stage II": No one can predict specifically and accurately for the year ahead.

New Strategies in Stage II - To the most AI-friendly country in the world

Integrated promotion of competitiveness enhancement and safety assurance

Facilitating R&D and utilization

Strengthening competitiveness

Respond flexibly to take advantage of rapid changes in the environment.

Strengthening competitiveness through integrated R&D and utilization

R&D of new convenience technologies

Strengthening R&D capabilities

Virtuous circles

Promoting AI utilization

Increase in data and AI-related investments

Upgrading the infrastructure of computing resources, etc.

New technology to improve safety

Minimizing Risk
Maximizing Profit

Ensuring safety promotes AI R&D and utilization

Safety and Security

Ensuring safety

A multi-layered approach (soft law and minimum necessary hard law) based on voluntary responses to develop the environment of safe and secure use and promote innovation.

Responding to risks

Literacy improvement, human resource development, copyright and intellectual property, handling of personal information, etc.

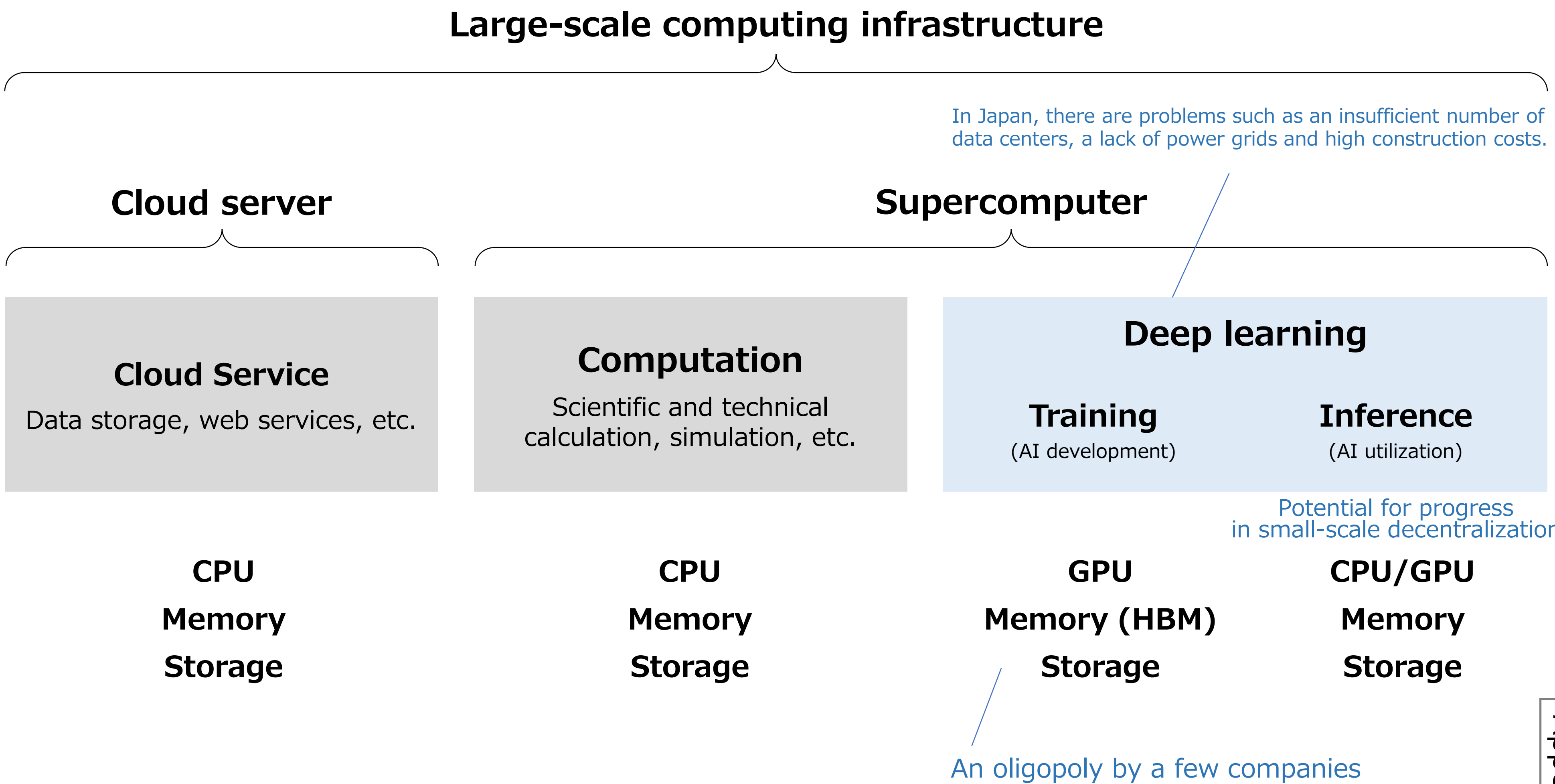
International collaboration and coordination, international consistency

Appendix 2

AI White Paper 2024 Key Recommendations

Chapter 1 **Japan in Stage II**	**Stage II Strategies - To the most AI-friendly country in the world -**	● To realize the **"world's most AI-friendly country"** with the best understanding of AI and the easiest AI R&D and implementation. ● **Maximizing profits while minimizing risks to the public** from AI. ● **Promote strengthening competitiveness and safety in an integrated manner.** ● Japan **continues to lead international rulemaking** on safe, secure, and reliable AI, based on the **achievements of the Hiroshima AI Process.** ● **Strengthen cooperative relationships with Asian countries and the Global South**, and **demonstrate strong leadership in the world in promoting international joint research and utilization of AI**.
Chapter 2 **Strategies for strengthening Japan's competitiveness through the use of AI:** **Flexible responses that take advantage of rapid environment changes**	**Promotion of utilization**	● To promote **further utilization in public administration, new guidelines will be established** based on the handling of confidential information, etc. ● **Disseminate "AI Guidelines for Business" widely to promote appropriate use of AI by** each organization, so that business operators can promptly respond to environmental changes on a risk-based basis against AI risks.
	Strengthening R&D capabilities	● **To utilize data for AI development,** establish a plan for providing data held by the Government and others, share examples of the use of private-sector data, and develop new data useful for development. ● **Synergistic efforts in the public and private sectors to collect, maintain and update data, and develop and utilize AI**, so that the development and utilization of AI can be firmly promoted **in fields where Japan can make use of its strengths**, such as automobiles, robotics and materials development, and **in fields that are also important for security**, such as medicine, finance and agriculture. ● Based on the discussions and recommendations of the LDP, the Government will **compile a support program for AI start-ups.** ● In order to dramatically strengthen competitiveness in cutting-edge AI technologies, including AI for Science, the Government will **develop a data infrastructure for national research institutes, etc.**
	Upgrading infrastructure	● The Government will **provide financial and other policy support** to ensure data centers and other infrastructure to become the world's most AI-friendly country and **encourage necessary private investment**. ● **Expand and upgrade the "AI Bridging Cloud Infrastructure (ABCI)"** and begin development of the **next generation of "Fugaku"** with AI capabilities.
Chapter 3 **Strategies to ensure safety**	**Appropriate governance**	● **The basis of AI governance in Japan is for operator and others to voluntary and continuously assess and reduce risks based on "AI Guidelines for Business," etc.** ● Based on the concept of the "Basic Law for the Promotion of Responsible AI (tentative name)" by the WG volunteers of this PT, etc., the Government will **develop the minimum necessary legal framework for AI models with extremely high risks.**
	Countermeasures against false and misinformation using generative AI	● **Comprehensive measures**, including institutional measures, will be compiled by the end of this summer to deal with **false and misleading information by using generative AI.** ● **In order to appropriately respond to negative impacts on elections,** relevant operators will **implement the same efforts as the Munich Accord in Japan.**
	Further efforts to ensure the safe use of AI	● Establish a **high-level network of AISIs in Japan and other countries,** for international coordination to ensure the safety of AI. ● AISI will **serve as Japan's nodal point** for AI safety assessment.
	Relationship with copyright and other intellectual property	● **Regarding intellectual property rights such as copyright**, the Government **will respect these rights** while taking measures in line with the AI era and **promoting appropriate AI utilization.**

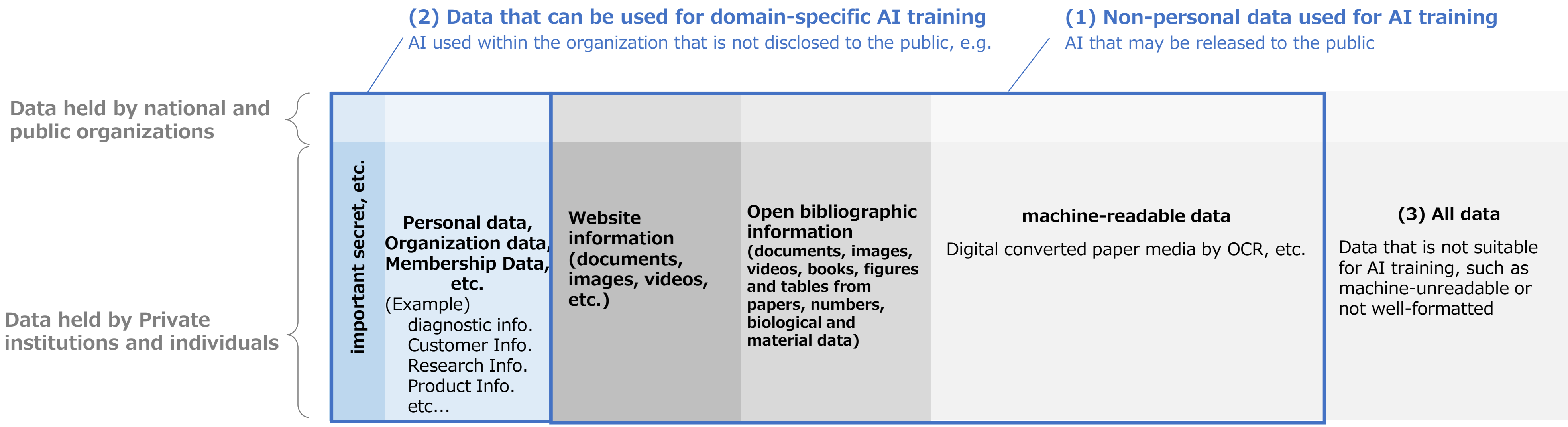
Overview of computing resources



Appendix 3

Overview of training data

- Data that exists in the world, is publicly available and does not contain personal information is a common target for AI training [(1)].
- On the other hand, even undisclosed data may be used to train AI for use only within the organization [(2)].
- The boundary between (1) and (2) can change depending on the social consensus.
- There is also a large amount of data that cannot be machine-readable and used for AI training, such as irregularly shaped paper documents [(3)].
  - ➡ Technologies for converting (3) into an AI-learnable form is also expected.
- Data in Japanese is less available than in data English. Training is more difficult in Japanese.
  - ➡ There are fewer difficulties with images, audio, etc., than with language.



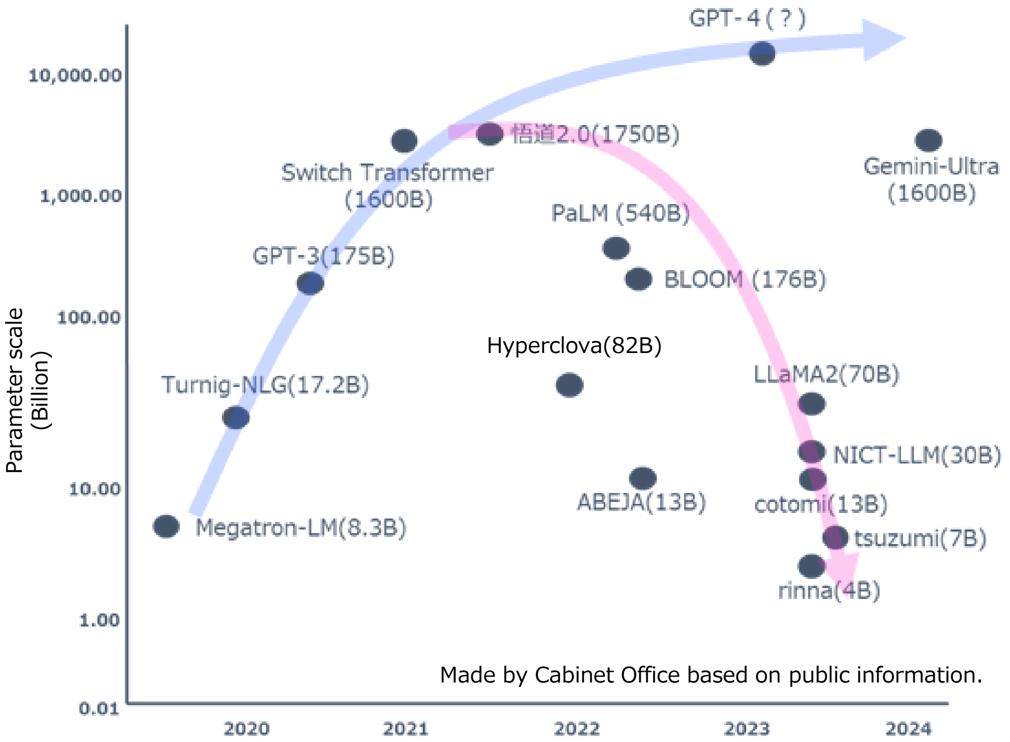
(Source: Compiled from materials of National Institute of Advanced Industrial Science and Technology (AIST).

Overview of AI models (March 2024)

Large-scale generic models & additional learning and combination of multiple models & learning efficiency

The method of constructing a large-scale foundation model has not yet been established and is still in the research phase.

Trends in the scale of generative AI



Sector-specific models, personalization, edge AI

Progress in AI implementation on various fields (fields x AI, AI for specific fields).
Personalization, implementation in each terminal/device will increase.

Multimodalisation

A variety of models are now available, including not only text, but also images, audio, and program codes.

Japan has accumulated high-quality data on images, sound, and acoustics required for manufacturing, medicine, and other areas where AI technology is applied, making it easy to find a way to win.

Utilization of external knowledge and training efficiency

We should promote the construction of technologies that enable the incorporation of new knowledge and inference without re-training (e.g., RAG*1), and technologies that make training and inference more efficient by integrating multiple models (e.g., MoE). *2

*1 Retrieval Augmented Generation, *2 Mixture of Experts

Open and Close

There is a movement toward open source as opposed to closed development methodologies that do not disclose the details of the model.

While open source is said to have advantages such as providing opportunities for many people, diversity, and transparency, some say that it can be abuse by malicious parties, security concerns, and intellectual property issues.

Overview of the Basic Law for the Promotion of Responsible AI

Legislative purpose

Purpose of Legislation: To promote the development of an open environment that enables the design, development and introduction of safe, secure and responsible AI and the human-centered use of AI. The law aims to maximize the benefits of the sound development of AI, including innovation by AI, while minimizing the risk of violations of fundamental human rights and other rights and interests of the public through the utilization of generative AI and other AI.

1. Promote the Responsible Use of AI

State: Promote the use of AI among public and private sectors to address social issues.
Measure: Build and strengthen public-private partnerships to promote AI technological innovation

State: Develop and attract human resources in AI sector and strengthen R&D capabilities
Measures: Provide subsidies and grants for AI related R&D

State: Strengthen the capacity of research institutions regarding the safety of advanced AI
Measures: Strengthen the capacity of the Japan AI Safety Institute (AISI) recently established

2. Designation of Advanced AI Foundation Model Developers

State: Designate AI Foundation Model Developers of a certain size/objective as an "Advanced AI Foundation Model Developer"

Issues TBD
- ✓ Justification and necessity to regulate developers of foundation models as a target of the regulation
- ✓ How to evaluate/classify based on "size" and "purpose" (e.g. number of parameters, training data, general purpose or not)
- ✓ Should the designation be made unilaterally or notifications be required beforehand? In the case of designating unilaterally, whether or not the State should be authorized to conduct investigations for the purpose of designation
- ✓ Whether or not to impose penalties against business entities who do not report?
- ✓ Geographical scope of regulation (whether to limit scope to models used for services provided in Japan)

Private sector: If a notification obligation is imposed, the target business entity shall submit a notification.

3. Obligation to Develop Systems by Advanced AI Foundation Model Developers

State: Designated developers shall develop business structures/systems including the following:
- ☐ Conduct internal and external safety verification, such as Red team testing, for AI in particularly high-risk areas.
- ☐ Share risk information among companies and governments
- ☐ Invest in cybersecurity to protect unreleased model weights
- ☐ Incentivize detection and reporting of vulnerabilities by third parties
- ☐ Adopt a mechanism to inform users when generative AI is used for a particular content
- ☐ Publicly report AI capabilities, limitations, etc.
- ☐ Prioritize research on social risks brought about by AI

3. Obligation to develop systems by Advanced AI Foundation Model Developers (continued)

Private sector: Formulate and publicize standards and codes of conduct that embody the afore-mentioned obligations by each business entity or industry association.

Issues
- ✓ Whether to entrust the private sector with establishing standards for AI quality-assurance, as in the case of the harmonized standards set forth in the EU AI Act?
- ✓ Whether to incorporate discussions with stakeholders in establishing specific codes of conduct (e.g. in EU Digital Services Act, the European Commission invites stakeholders to formulate codes of conduct)
- ✓ Should private organizations establish a new certification system, etc.?

4. Reporting Obligation and Supervision

State: Advanced AI Foundation Model Developers shall regularly report their status of compliance regarding the requirements set forth in Section 3 to the national government or to third parties (e.g., AI Safety Institute)

Issues
- ✓ Whether or not public disclosure of such report should be required

State and **private sector**: State shall monitor and review specific Advanced AI Foundation Model Developers based on the above status report. State may seek the opinions of relevant parties in the private sector.

State: State shall publish the findings of assessments and, in certain cases, request Advanced AI Foundation Model Developers to implement remedies.

State: State may request reports and conduct on-the-spot inspections in the event that any Advanced AI Foundation Model Developers fail to comply with obligations, or cause an incident.

5. Penalty, etc.

State: Surcharge or penalty for breach of obligation/order

Private sector: Revocation or suspension of certification, etc.

Appendix 4