The AI White Paper
- Japan's National Strategy in the New Era of AI -
(Summary Version)

April 2023, Digital Society Promotion Headquarters of the Liberal Democratic Party, Project Team on Evolution and Implementation of AI.

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1. The Necessity of Developing a New National Strategy for AI

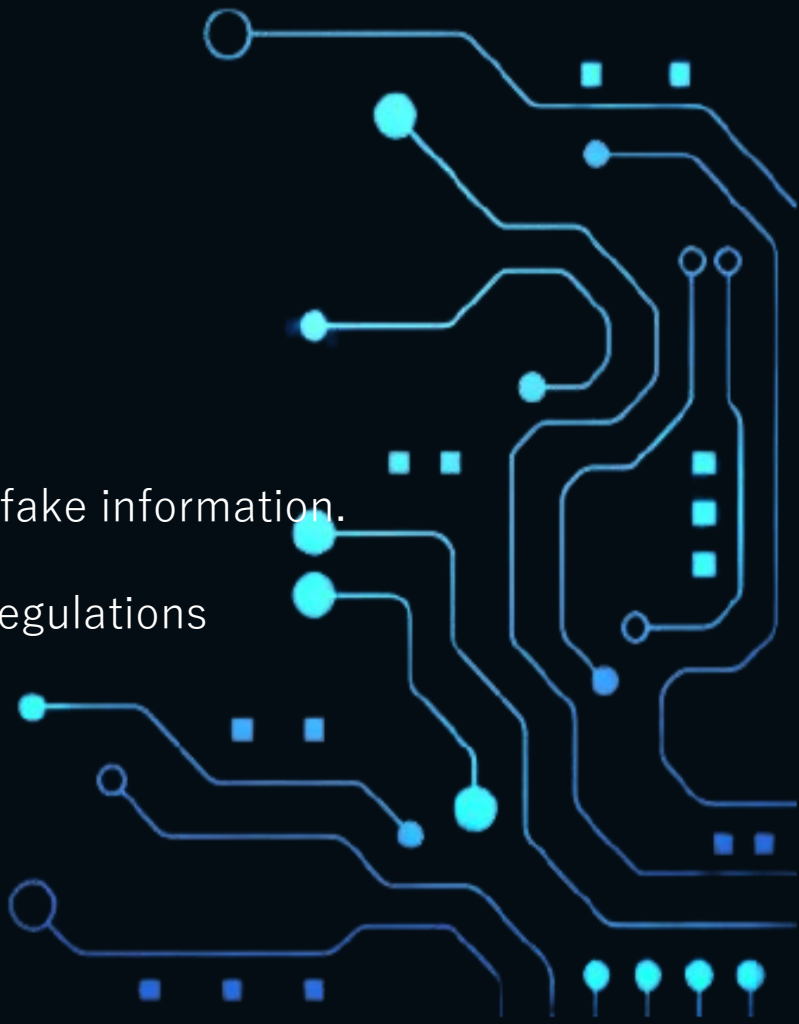
(1) The Social Impact of LLMs

・“There is a high possibility that almost all white-collar jobs could be affected."
(Yutaka Matsuo, Professor, University of Tokyo)

・“From now on ‘machines’ will be creating an infinite amount of content. "
(Kazuto Ataka, Professor, Keio University.)

・“Something that rivals the invention of the engine, semiconductor, and the Internet is happening at an explosive pace. “
(Hiroaki Kitano, President and CEO of Sony Computer Science Lab)

(2)Europe and the United States are advancing rulemaking for societal acceptance



・There is a risk of "plausible lies" being mixed in

with LLM (Language model) outputs.

・There is a risk of spreading highly sophisticated fake information.

→It is time to reassess the distance between our regulations

and those of Europe and the United States

(3) Developing a New National AI Strategy that is Aligned with the Era of AI

Intensifying International Competition

・Japan ranks 29th out of 63 countries in the Digital Competitiveness Ranking

・The United States plans to invest 2.6 billion dollars

(about 340 billion yen) in AI computing resources.

・The UK announced a plan to invest 900 million pounds

(145 billion yen) in LLM development

1. The Necessity of Developing a New National AI Strategy

Proposal

- In light of the rapid evolution and social implementation of foundation model AIs such as LLMs, we recommend that the government formulate a new comprehensive strategy for the new era of AI that is in line with the various recommendations outlined in this white paper. This should be done promptly by developing new policies and reevaluating past initiatives.

- In formulating a new national strategy, it is necessary to take on a competitive advantage in both content and scale compared to other countries. A command tower for AI policies should be established, while expanding its organizational capacity and actively incorporating the knowledge of experts and private sector businesses from both domestic and foreign sources. A comprehensive and urgent review of policies should be conducted from a wide range of perspectives including research and development, economic structure, social infrastructure, human resource development, and national security.

2. Nurturing and Strengthening Japan's AI Development Capacity

2. Nurturing and Strengthening AI Development Infrastructure within the Country

(1)Building and strengthening the development capabilities of AI models, such as foundational models

Proposal

- ○ Actively utilize overseas platforms to accumulate domestic knowledge on foundation model AIs and accelerate applied research and development.
- ○ Continuously invest and support the development of domestic fundamental technical capabilities for foundation models and other AI models within the country.
- ○ Steadily implement talent development policies based on the AI Strategy 2022 to foster digital talent, and consider further strengthening talent-related policies to develop internationally competitive human resources not only in the development phase but also in the utilization phase of the foundation model era.
- ○ We will establish an "AI hub" that collects information on AI and serves as a bridge between companies facing challenges and excellent technology and research personnel. We will also support the formation of a community.

⑵Data resource aggregation and collaboration

The bias in the data used for learning is a significant challenge for foundational model AIs.
For example, in overseas image-generating AI services, they may not be able to create images related to Japan effectively.

Generated using the "Shrines of Japan" prompt in non-Japanese generative AI platform.

(2)Data resource aggregation and collaboration

Proposal

- ○ The government should work on creating an environment to promote the utilization of public and private data by AI in the next review of the "Comprehensive Data Strategy" planned for this year. In doing so, they should further promote the establishment of standard data models and clarify the attributes and structures of data.
- ○ Efforts should be made to archive public data held by the government and local governments in a way that enables their use based on the foundation model, and to clarify rules and formats for third-party provision.
- ○ To address the issue of data bias in AI, it is important to actively provide appropriate Japanese language data for domestic and international foundation models and increase the proportion of training data related to Japan. The government should also lead efforts to create and utilize Japanese language corpora.
- ○ To promote the development and practical use of AI for source code generation, with a focus on improving the efficiency of software development and addressing the shortage of digital talent, efforts should be made to enrich and utilize training data.

(3) Strengthening and utilization of computing resources.

Building foundational model AIs requires tremendous computational power. However, the cost of such resources is enormous.

⑶Strengthening and utilization of computing resources

Proposal

- ○ We should refer to initiatives such as the "AI Bridging Cloud Infrastructure" at the National Institute of Advanced Industrial Science and Technology and work on the domestic infrastructure development and expansion of the computing resources required for the construction and utilization of foundational AI models, and establish a new framework that can be shared and utilized by relevant government and private sector entities.
- ○ Taking into account the potential for further utilization of edge computing and the need to ensure stable access to computational resources for AI, we will enhance the development of the semiconductor industry. Specifically, we will strengthen support for the design capabilities and R&D of high-performance semiconductors, which are expected to experience rapid demand growth in the future.

3. Advancing Thorough Utilization of AI in Government

(1)Thorough AI utilization by the government

The utilization of AI in the administrative sector brings social benefits such as improving the quality and efficiency of administrative services.

The government's approach to promoting AI utilization serves as a boost for local governments and private businesses.

(1) Thorough AI utilization by the government

Proposal

- ○ Investigate advanced use cases of AI in government agencies in other countries, as well as guidelines for such usage, and utilize this information to plan and implement AI adoption in Japan.
- ○ As a concrete example of utilizing foundational model based AIs in administrative services, it is important to immediately initiate multiple pilot projects that can demonstrate results in a short period of time.
- ○ Conduct hackathons and business contests to discover AI utilization projects in government administration.
- ○ Develop guidelines to accelerate the thorough utilization of various AI technologies including foundational models in the administrative sector.
- ○ Establish a specialized team within the government (AI Implementation Support Team) to accumulate, analyze, and share use cases utilizing AI and support AI adoption by relevant agencies and organizations.

(1) Thorough AI utilization by the government

Examples of AI pilot projects in government:

○ Administrative work that involves ensuring consistency with previously accumulated materials, such as drafting of parliamentary responses, legal review support, analysis support for government statistics, and creation of meeting minutes.
○ Tasks related to checking for deficiencies in application documents, and responding to inquiries from citizens regarding regulations and systems.

(2)Support for the promotion of "AI-Smart City" utilizing national strategic special zones.

Proposal

- ○ The government will strongly support local municipalities' efforts to promote smart cities using AI, utilizing the national strategic special zone system.
- ○ In addition, the current system and operation of the Super City-type National Strategic Special Zones and Digital Agricultural and Rural Areas Special Zones will be reviewed from the perspective of ensuring their suitability for the utilization of AI, and any necessary improvements will be made promptly if identified.

4. Encouraging and Supporting the Utilization of AI in the Private Sector

4. Encouraging and Supporting the Utilization of AI in the Private Sector.

Japanese private companies, particularly small and medium-sized enterprises, have been lagging behind in utilizing AI.
All businesses should seriously reconsider the impact of the AI era on their own businesses.

Encouraging and Supporting the Utilization of AI in the Private Sector.

Proposal

- Conducting an urgent research on the impact that foundation model AIs will have on various domestic industries.
- Encouraging the creation of various startups and new businesses that utilize AI. In particular, promoting and supporting the acceleration of cloud migration of IT systems, which is a prerequisite for small and medium-sized enterprises to benefit from the productivity improvement and other benefits of AI utilization.
- We recommend that private sector companies and public institutions of a certain size should appoint a Chief Digital Officer (CDO) responsible for AI utilization and data handling.
- To encourage not only risk management but also creativity and innovation among private businesses, it is necessary to discuss and develop AI governance guidelines if needed.
- To support efforts towards fostering human resources that are suitable for the AI era, measures to promote the utilization and treatment of AI personnel in companies, including reskilling, should be supported.

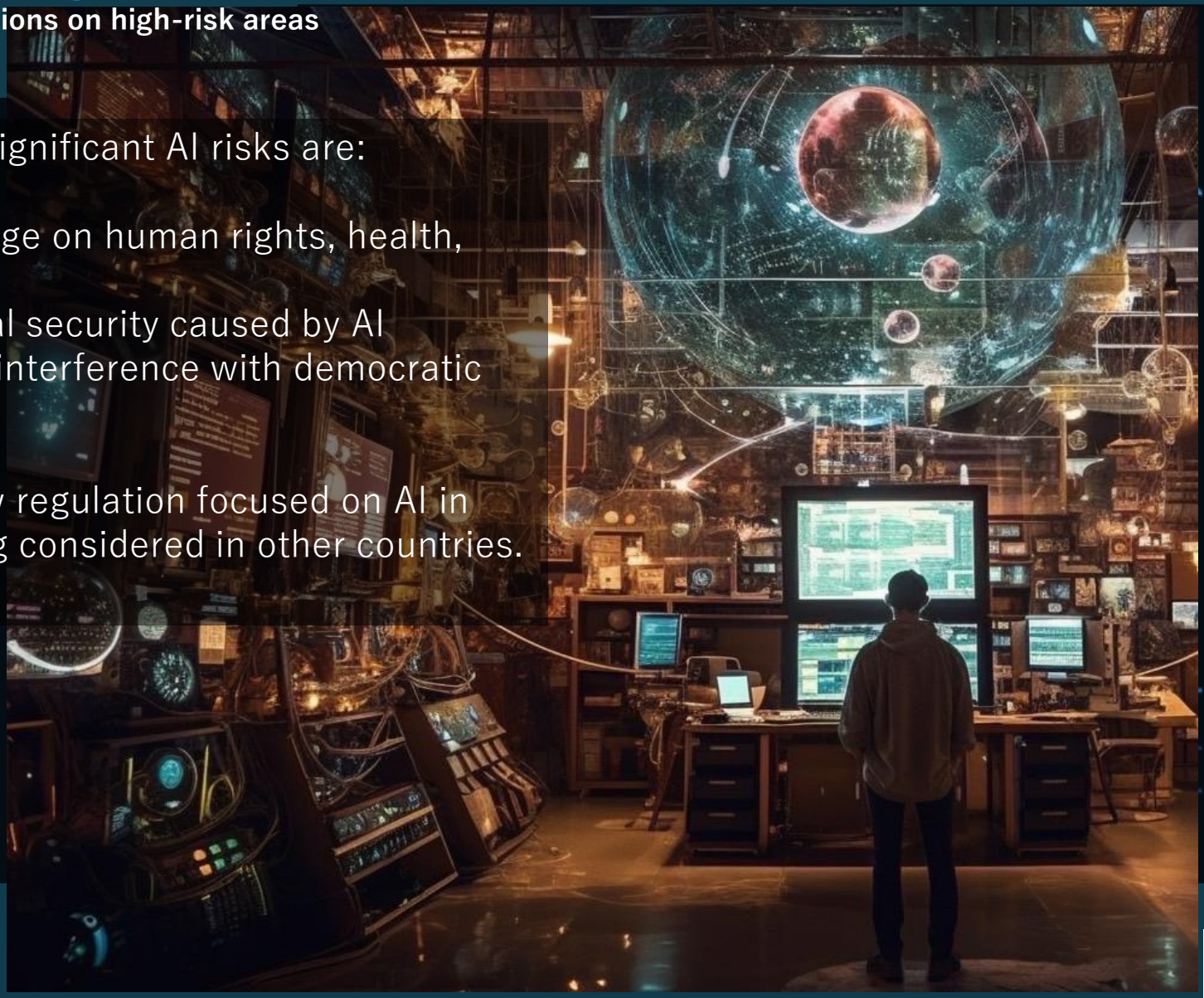
5. A New Approach to AI Regulations

(1)Consideration of regulations on high-risk areas

The three types of significant AI risks are:

- Risks that infringe on human rights, health, safety, etc.
- Risks to national security caused by AI
- Risks of undue interference with democratic processes by AI.

There is no hard law regulation focused on AI in Japan, but it is being considered in other countries.



(1)Consideration of regulations on high-risk areas.

Proposal

- ○ Analyzing the status of AI regulations under consideration in foreign countries such as the EU, the United States, and China, concrete considerations should be made on the areas where legal measures, including regulations, are deemed necessary in the AI new era, such as 1) significant violation of human rights, 2) national security, and 3) interference with the democratic process.
- ○ Japan should actively and strategically engage in discussions on international rules related to the use of AI, utilizing various international forums including the G7 Summit, which Japan chairs this year, and cooperate with other countries to establish global frameworks for AI utilization.

(2)Adapting regulations flexibly to the new AI era

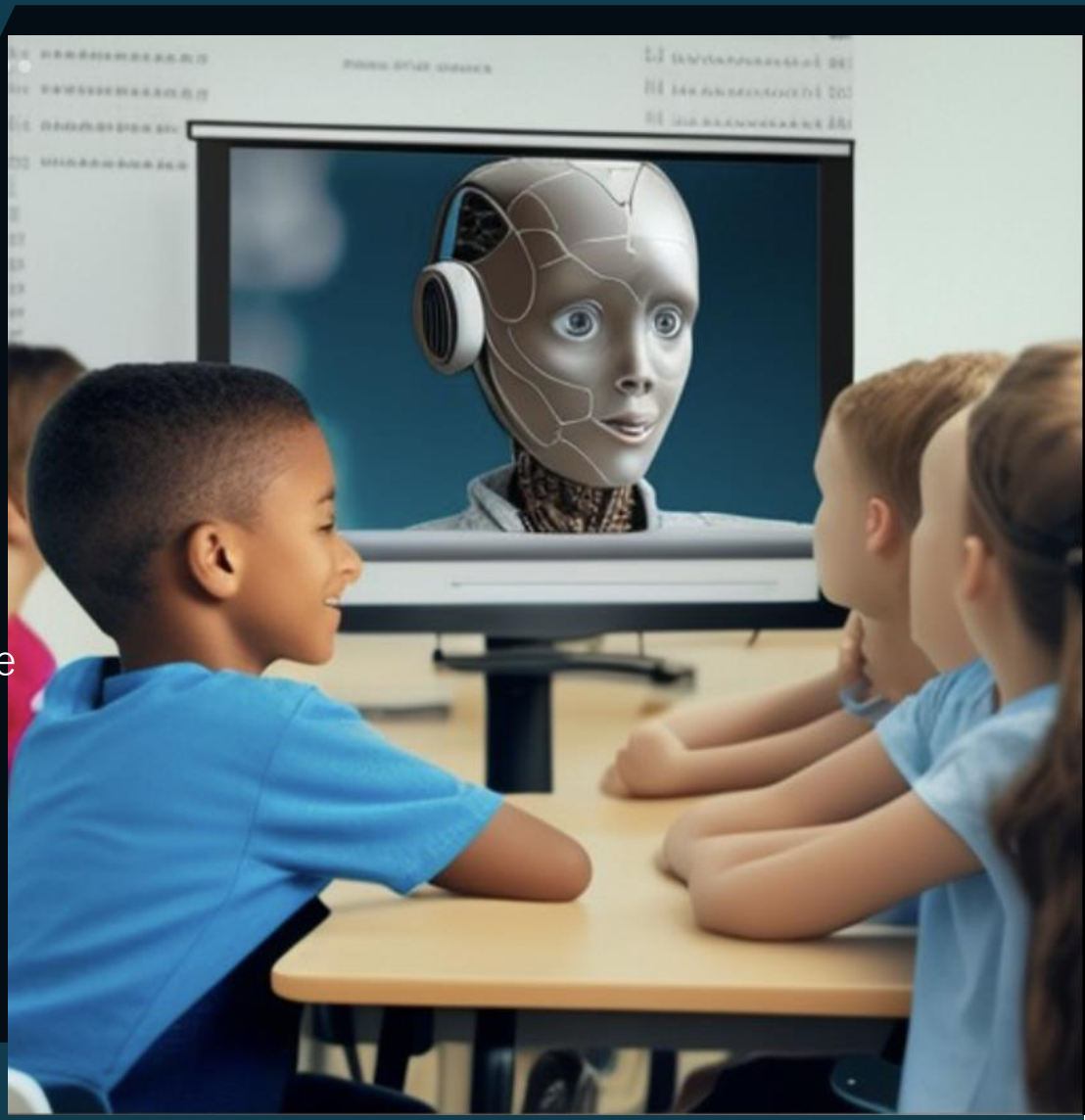
Proposal

- ○ Establish a mechanism to promote the revision of analog regulations based on digital principles by horizontally disseminating information obtained through technology verification related to the potential use of AI to various government agencies and the private sector.
- ○ We will improve the speed and user-friendliness of existing regulatory reform procedures such as the Regulatory Reform Council, regulatory sandbox, and gray zone improvement process, and develop and expand an environment where businesses can challenge new businesses without being restricted by existing regulations.
- ○ To promote the advancement of AI technology while preventing abusive use and enabling the further development of Japan's content industry, discussions on the interpretation of intellectual property laws related to generative AI should be held, and guidelines should be considered for their formulation.

(3)Organizing guidelines for the use of AI in education

AI will bring significant impact on the education field

・AI can further diversify learning methods
・The importance of nurturing AI-native talent will increase in the future.
・Regulations are necessary for the use of AI in addressing challenges in schools.



⑶Organizing guidelines for the use of AI in education.

Proposal

- ○ Government should position the improvement of AI literacy in the public education curriculum as a concrete skill set in anticipation of the AI-native era, in which the active use of AI in everyday socio-economic activities becomes commonplace.
- ○ To ensure that the improvement of AI literacy is integrated into public education curricula and to prepare for the AI-native era where the active use of AI in daily social and economic activities becomes commonplace, it is important to establish guidelines for handling AI in the classroom, including the permissibility of using LLMs, and to do so promptly.