

# AI Strategy 2022

(tentative translation of its overview)

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Secretariat of Science, Technology and Innovation Policy  
Cabinet office, Government of Japan



# Outline of AI Strategy 2022

- Realize Society 5.0 and contribute to SDGs, based on the principles (**Dignity for People, Diversity and Sustainability**)
- **Five strategic objectives** (Human resources, Industrial competitiveness, Technological Systems, and International Cooperation; and Dealing with Imminent Crises, which were added afterward) were set out to implement three principles.
- In the AI Strategy 2022, the course to be taken to **deal with imminent crises** such as pandemics and large-scale disasters are clarified, and **new objectives to enhance implementation in society**.
- Taking into account recent governmental actions related to economic security, the government should coordinate its measures effectively and pursue synergies with other strategic fields such as quantum and biotechnology.

## Strategic Objective 1 : Human Resources

-Establish a sustainable framework to develop and attract human resources suitable for the AI Era

## Strategic Objective 3 : Technological Systems

-Realization of a framework to establish and operate a series of technological systems

## Strategic objective 0 : Dealing with Imminent Crises

-Establishment of systems and technological infrastructures to maximize protection of people's lives and property against pandemics and large-scale disasters.

## Strategic Objective 2 : Industrial competitiveness

-Promoting AI adoption in real-world industries and securing a position as the world's top runner

## Strategic Objective 4 : International Cooperation

-Establishment of international AI research, education, social infrastructure network

### Dealing with Imminent Crises

National Scale	Planetary Scale	Resilient Foundation
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### Building a foundation for the future

Education Reform	R & D
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### Infrastructure for industry and society

Implementation In society	Data Platform	Digital Government Support for SMEs and emerging industry
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### ELSI

AI social principles
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Set and promote new objectives based on the recent trends

## Progress of former AI Strategy

- ✓ **90% (154 of 171) of measures** due by the end of FY2020 were **progressing as planned**
- ✓ However, the benefits of some measures **have not yet been widely recognized.**

## Typical Results of former AI Strategy

### Education Reform

- "**Mathematics, Data Science and AI Education Program Certification System**" (78 certifications (for Literacy level) by 2021.8)
- Acceleration of "**GIGA School Program**"

### Restructuring of R& D System

- Establishment of "**Artificial Intelligence Research and Development Network**" and promotion of information coordination among participating organizations (116 organizations participated as of 2021.9)

### Implementation in Society

- Demonstration of the **Smart Agriculture Project** (carried out in 148 districts in fiscal 2020)
- Construction of land transport platforms
- Construction of infrastructure for cooperation of port-related data to improve productivity of container logistics

## Present situation of AI technology policy

### International

**AI technology** is **essential for maintaining fundamental functions of society** such as "national security" and "preservation of democracy"



US

- ✓ Overhaul AI Policy and strengthen budget (bring AI budget (non-defense) to \$32 billion per year by 2026)



China

- ✓ Accelerate "intelligence" to utilize mechanization, informatization, and AI to improve the military's strategic capabilities (new 5-year plan (2021-25) announced in March 2021).



Europe

- ✓ "Proposed comprehensive regulations on AI Use" (April 202) (AI systems used in the EU are classified into 4 stages, such as "Unacceptable" and "High Risk" categories. Violators will face a maximum fine up to EUR 30 million.)

### Domestic

### Changes in social & economic systems

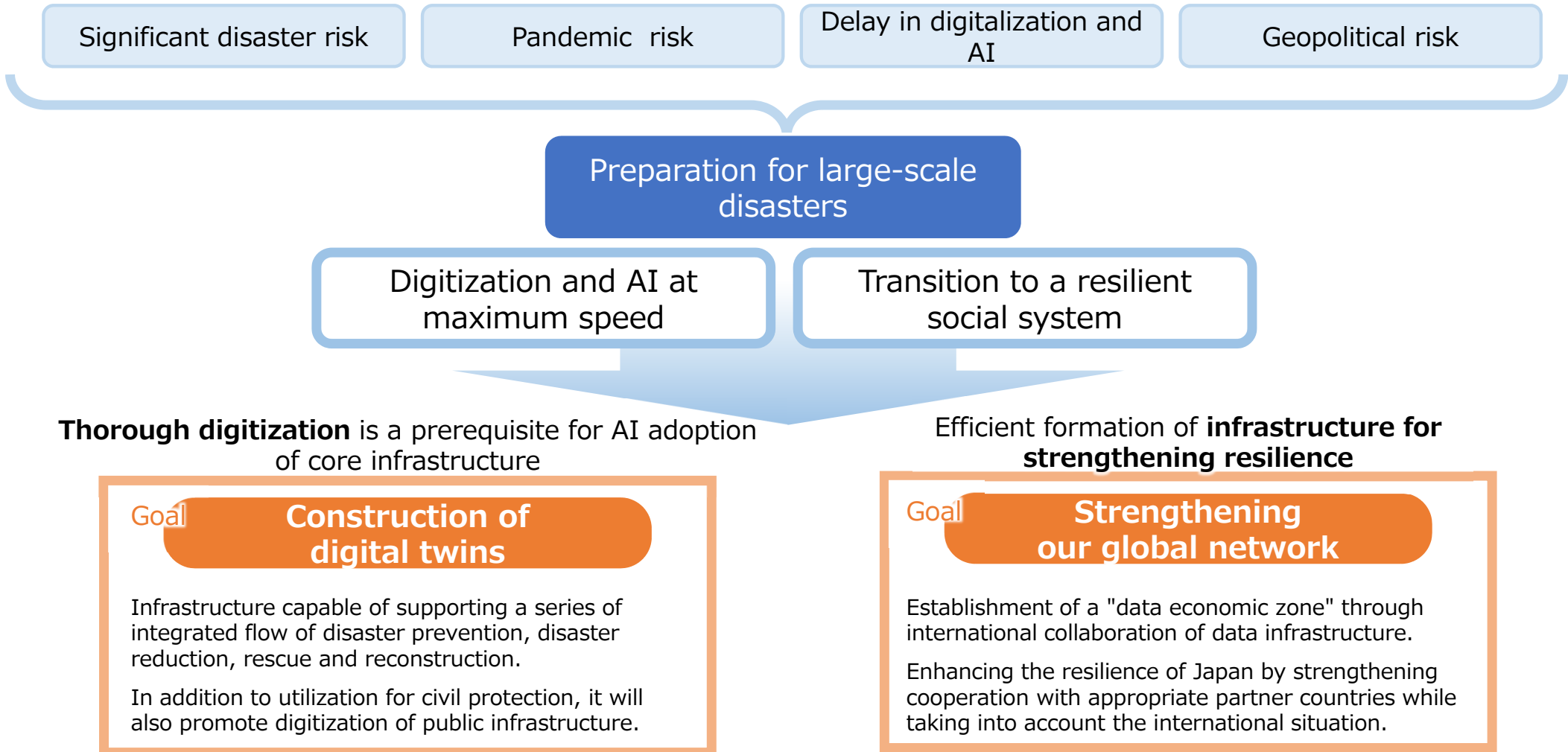
- Progress in teleworking and changes in lifestyles due to the pandemic
- Promotion of digitization (establishment of Digital Agency, government cloud)

### Preparation for large-scale disasters & pandemics

- Disaster-Ready for events such as an earthquake directly beneath Tokyo, Nankai Trough earthquake etc.
- Pandemic-Ready for not only COVID-19 but also emerging infectious diseases

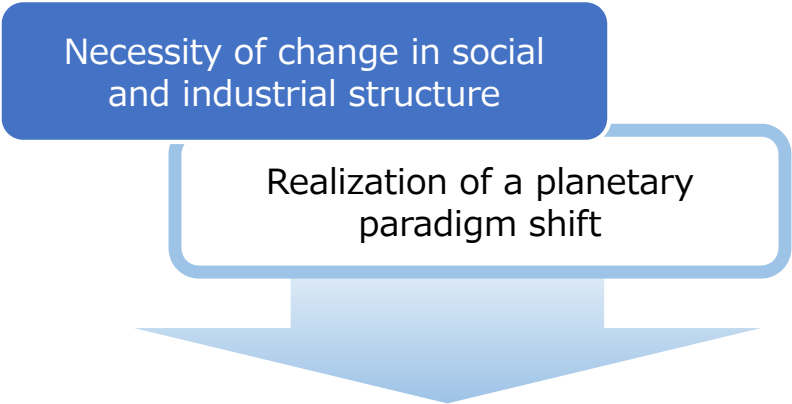
The new AI Strategy is needed to create significant value.

- Minimizing damage from disaster is taken as a matter of course. Reconstruction after the large-scale disaster is another major challenge for Japan. The risk of a new pandemic, decline in Japan's physical strength due to depopulation, and delays in digitization could lead to a critical situation.
- These problems cannot be overcome by AI alone, but AI should be used extensively as a catalyst to break the current impasse.
- To this end, it is necessary to **build digital twins** and **strengthen resilience by strengthening global networks**.



- In the future, our social and economic activities will require a paradigm shift that will contribute to an increase in biological diversity and the restoration of nature.
- AI can be an important core technology for adopting to this paradigm shift.
- Japan should hone its strengths to take leadership in **AI applications in the field of sustainability**.

- AI and digitization play a central role in achieving national and planetary resilience.
- Technologies such as "explainable AI" that constitute the concept of "**responsible AI**" ensure the reliability of the information infrastructure and create competitive advantages in terms of high quality, security and safety in Japan.



**Japan's leadership** in finding great value in safety and security and in harmony with nature

**Goal** **AI applications in the field of sustainability**

Applying AI in areas such as contributing to unstable food supply, responding to energy supply, improving access to health care and education, and resource recycling.



Enhancing competitiveness through high-quality, reliable, safe and secure AI

**Goal** **Initiatives for Responsible AI**

Establishing leadership in technology development and operations, such as "explainable AI," and ensuring that AI platforms are robust will enhance competitiveness.

- In order to promote the implementation of AI in Japan, it is necessary to **further promote the digitization of society.**
- Also, with regard to AI, it is necessary to discard **the following assumptions.**

Assumption

AI substitutes for human work?

As long as it is considered that AI is a complete substitute for human work, there will be very few situations where AI can be effectively used and implementation in society will be slow.

AI works with people

Collaboration between people and AI can minimize effort and maximize profits.

Assumption

Only engineers can understand AI deeply?

When considering how to use AI, it is not appropriate to assume that only engineers can understand AI deeply, and to think that engineers who can build AI systems are necessary.

From the business case, AI can be understood.

It is not always necessary for a company to develop AI itself. Acquiring existing AI or incorporating useful elements of an existing business model that includes AI and differentiating itself in other areas is also an effective approach.

Assumption

All depends on the data?

There is an assumption that if you don't have a large amount of data, you can't win in AI utilization.

It is important to form a loop

It is also effective that the provision of services enables to acquire data, to strengthen the service to enhance AI.

**Deep learning**, which could be widely and effectively used in image recognition and natural language processing, should be prioritized as **an important field**. The following efforts should be made while keeping in mind **the implementation by private companies**.

- There is a view that it is difficult to introduce AI in Japan because there is a **strong tendency to expect excessively high quality** from AI.
- Therefore, it is expected to **accelerate the development of technologies that can break the black box nature of AI (e.g. ensuring transparency and accountability of AI) to realize highly reliable AI in the first place, and to take initiatives on ELSI.**

Goal **Improve AI reliability**

- There is a view that although Japan **has accumulated a considerable amount of data in each field, it has not been able to utilize it more effectively than other advanced countries.**
- Therefore, it is expected that **data supporting AI utilization** will be enhanced and that a large-scale data area will be constructed with a view to linking with overseas.

Goal **Enhancement of data supporting AI utilization**

- In Japan, there are **environmental constraints such as a shortage of human resources and restrictions on sharing of technical information and handling of data.**
- In addition to **further enhancing efforts to secure human resources**, it is expected that the environment will be improved by **supporting the activities of young human resources and actively providing technical information held by national research institutes.**

Goal **Development of environment for securing human resources, etc.**

- In some cases overseas, **the public sector has been actively engaged in AI utilization**, thereby suppressing negative elements.
- **Active AI utilization by government agencies** is expected to improve socioeconomic efficiency, improve the QOL of people, and promote the use of AI throughout society.

Goal **Promotion of AI utilization in the government**

- It is also effective to integrate AI with technologies in which Japan is strong, such as physics, chemistry, and machinery.

Goal **Integration of AI with fields where Japan has strengths**

## **Advisory Council(AI Strategy Implementation Council)**

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## **New AI Strategy Review Study Group**

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