AI Utilization Strategy
For an AI-Ready Society

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Keidanren
Introduction

Hopes are pinned on Japan as a pioneer in solving humanity-wide challenges and aiding the drive to achieve the SDGs.

In response, Japan has unveiled its "Society 5.0" vision. Artificial Intelligence (AI) will be the core technology behind the creation of Society 5.0.

The AI revolution has entered its industrial phase and will lead the evolutionary advancement of industry and society to a new level.

Our strategy was put together with attention to the strategies and principles established by other nations and the question of how industry can best pursue the utilization of AI and harness its power.
Going forward, major benefits are anticipated with the industrial and social integration of AI systems. Backed by recent advances in technology, deep learning and other AI methodologies have made huge strides.

- Large volumes of data required
- Have surpassed humans in certain areas of identification and measurement
- Learning-based systems capable of defining conditions through analysis of data
- Results achieved with AI difficult to explain
- Limited in handling of unknown events

Future prospects
- Use of simulations for utilization of AI with small datasets
- Scientific knowledge discovery

I. Background

Figure 1: Learning-based systems

- **Rule-Based**
  - Define system actions with knowledge expressed through rules.
  - If temp > 35 °C and humidity >70%:
    - Issue heatstroke alert
  - Else: Do nothing

- **Learning-Based**
  - Define system actions based on learning from large volumes of data.

Figure 2: Mechanism of AlphaGo Zero

- **AlphaGo**
  - Possible moves in game of Go based on past moves

- **AlphaGo Zero**
  - Go moves discovered when conditions are a “blank slate”
How Japan Can Win

AI as a social good
Society 5.0 for SDGs powered by AI

Business applications with real-world AI

AI integration, On-site capabilities, and comprehensive strengths

I. Background

Fully utilize AI as a social good in the interest of society and humankind. Contribute to development of Society 5.0 for SDGs.
This is an obligation of nations and companies equipped with the AI technology.

The main battleground for digital companies and other industries is shifting to the real world. Leverage real-world strengths in technology and expertise and transform existing businesses to be AI-and-service oriented.

Seamless integration of cyber space into the workplace
On-site capabilities in data quality management/maintenance and processing
Comprehensive strengths in integrated systems operation
II. Utilization Principles

Principle I
Implement Society 5.0 for SDGs with AI.

Principle II
AI for diversity and inclusion

Principle III
Build AI-ready social systems, industries, and companies

Principle IV
Develop trusted quality AI

Principle V
Promote appropriate understanding of AI
Guidelines for an AI-Ready Society

Cultivating AI-ready companies, individuals, and systems at all layers of society will be essential to the utilization and expansion of AI.

**AI-Ready Companies**
First, cultivate AI-ready companies with the ability to effectively utilize AI and data. Then, foster corporate and industrial innovation with AI applications in all operations.

**AI-Ready Individuals**
Cultivate AI-ready executives, core human resources, and users. Reform education, upgrade environments for R&D, and improve the understanding of users.

**AI-Ready Social Systems & Industrial Platforms**
Ensuring AI quality and reliability will be vital to the social and industrial penetration of AI. Pursue the development of trusted quality AI ecosystems.
AI-Ready Companies

Five developmental levels in the formation of an AI-ready company, involving the management layers, specialists, employees, and systems and data.

### Management layers

**Level 5**
- CxOs who understand the synergy of AI and data lead company- and industry-wide reforms
- Pursuing cooperative ties industry-wide and with other firms.

**Level 4**
- Have personnel in management positions, who are able to understand and utilize the synergy of AI and data in operations
- Sustained investments aimed at achieving AI-ready status

**Level 3**
- AI applications integrated into management strategy
- Commitment to investments in AI
- Executive AI training implemented

**Level 2**
- Recognize potential of AI and communicate directions
- No detailed strategizing yet
- Data and ethics issues not clearly defined

**Level 1**
- Zero understanding of AI
- Poor awareness of the business impact AI can have on own company or industry

### Specialists

**Run all business and corporate operations utilizing the synergy of AI and data, and pursue fundamental industry-wide reforms**
- All engineers possess field-specific AI knowledge
- Have advanced personnel and experience in AI and data application technology and research

### Employees

**Majority possess strong AI literacy**
- Organized and compliant with data ethics considerations
- Pursuing business reforms with the synergy of AI and data

### System level/data

**All elements including real space digitized and utilized in real time**
- Field-specific AI functions, APIs, and shared PFs used in collaborative domains
- Development and service commercialization of proprietary AI functions in competitive domains

### Shift from AI-ready to AI-powered status

**Boost corporate value with the synergy of AI and data. Leverage AI as a driver of core business value**
- Have launched leading-edge projects in both technology development and research to harness the synergy of AI and data

### Pursuit of AI-ready status

**Have a prospect for automation of existing operational flows utilizing the synergy of AI and data. Also launch strategic AI applications**
- Equipped with sizable number of specialists in AI analysis and implementation
- Able to develop and implement own AI operations

### Initial stage

**Amass early experience with AI utilization on a small scale. Transition a selection of simple operations to AI with assistance from specialists.**
- AI and data themes understood by a minority
- Existing tech applied in collaboration with outside partners

### Preliminary stage

**Only discuss AI methodologies without the start of efforts in business administration, innovation, or creation utilizing the synergy of AI and data**
- Some employees understand AI basics
- Some employees have grounding in AI and data
- Hiring of AI human resources initiated

## Guidelines for Companies
**AI-Ready Individuals**

To ensure that all individuals can utilize and benefit from AI, it will be necessary to train top-level and core human resources and provide users with literacy education.

### Target Layers

#### Initiatives

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| **Top-level human resources (researchers)** | - Develop training mechanisms unconstrained by existing educational systems.  
- Build frameworks for accurate assessments of top-level human resources.  
- Pursue collaboration on AI with all academic disciplines (*).  
- Starting with international symposia on AI, establish international centers for collaboration by industry, academia, and government. |
| **Core human resources (engineers)** | - Establish “AI engineering” program for the utilization of AI by engineers from varied backgrounds.  
- Promote recurrent education approaches to the training of AI engineers.  
- Promote double majors in AI and specialized fields(*) and liberal arts degree programs  
- Promote the accreditation of education programs for AI personnel through collaboration by industry, academia, and government. |
| **Literacy (for users)** | - Pursue reforms to the education system aimed at ensuring that all individuals acquire AI literacy.  
- Expand liberal arts education to facilitate the utilization of AI by all individuals.  
- Utilize personal data through individual initiative to build a better society.  
- Utilize AI as a technology for inclusion to build a more diverse society. |

*Note: For example, a broad spectrum of fields including finance, medicine, economics, law, and the arts.*
It is important to develop trusted-quality AI ecosystems that will assure user reliability and the quality of data and AI as social systems and industrial platforms.
Ensuring Data and AI Quality & Achieving Sustained Quality

Steps to ensure AI quality through seamless integration, on-site capabilities, and comprehensive strengths as well as the collection of quality data and mechanisms to sustain that quality, will all be key.

Harnessing Japan’s strengths

- Assure AI quality through seamless integration, on-site capabilities, and total strength.
- Approach the task as an engineering challenge and pursue its establishment as a systematic technology.

Collecting quality data & sustaining that quality

- Promote open access to, and standardization of, public data
  - Promote open access to data held by national and local governments.
  - Promote the development of APIs and standardize the formats that facilitate their use.

- Overcome sectoral and public-private barriers and share, coordinate, and utilize varied types of data
  - It will be important to assign flexible data utilization rights through inter-business agreements.
  - Open APIs should be promoted as an effective approach to the reciprocal use of data by corporate and industrial counterparts.

- Promote the distribution and re-use of trained models.
  - Trained models generate value through re-use and distribution. Mechanisms and efforts in R&D aimed at facilitating their distribution and re-use should be explored.
Ensuring Trust & Sense of Security about Data and AI

Setting goals for the utilization of AI, encouraging a sense of trust in data and AI, and ensuring sense of security in the event of operational problems or accidents in implementing AI functions, will together contribute to the creation of trusted AI systems.

### Setting Goals

- Clarify social significance of AI utilization.
- Clarify corporate stance on use of AI and put it into practice.

### Trust in Data & AI

- Ensure data reliability and quality levels.
- Implement AI that ensures fairness, accountability, and transparency.
- Communicate with users about the characteristics of AI.
- Conduct R&D on explainable AI (xAI).
- Develop rules that ensure a balance between the use and protection of personal data.

### Sense of Security in Implementation & Operation

- Guarantee the safety and dependability of the system as a whole.
- Take into consideration privacy, security, and human rights from the design stages for products and services.
- On matters involving rights and interests or the assignment of liability, place emphasis on agreements between the parties involved.
- Develop technologies, systems, and legal frameworks for the management of data-related rights.
- Enhance insurance frameworks for the handling of problems and accidents and investigate the causes.
Strategic Frameworks for Utilization of AI

The following three frameworks should be taken into account when pursuing the expansion of AI in individual fields where real-world field expertise and real data(*) can be made use of.

**Social Framework**
- Develop ethics education and internal rules for AI utilization.
- Explore legal frameworks with government and users.
- Establish data policies.

**Technical Framework**
- Build technical framework for realization of diversity and inclusion.

**Business Framework**
- Build field-specific platforms.
- Promote cross-industrial cooperation.

*Healthcare, energy, mobility, manufacturing/services, finance, etc.*
In conclusion,

AI is a technology for the solution of humanity-wide challenges. Using it will be an obligation for companies and humankind as a whole.

Having a focus on what to use AI for is important. AI will contribute substantially to the achievement of Keidanren's visions—”Society 5.0 for SDGs” and “Japan as a successful platform for diversity and inclusion.”

It is vital to take early action in line with the technological advancement of AI and rapidly changing environment. We encourage companies to move forward with steps to transform themselves into AI-ready enterprises. Keidanren is committed to promoting the advancement of AI in specific sectors.