The 2024 Survey on the Technology Cooperation of China-Japan-Korea

The Chinese Academy of Engineering (CAE), the Engineering Academy of Japan (EAJ), and the National Academy of Engineering of Korea (NAEK) are conducting the 12th perception survey on the technology cooperation among China, Japan and Korea, with the aim of providing a cooperation platform for promoting the common development and addressing the common challenges of East Asia. Like previous surveys, the questionnaire is jointly answered by members from the national engineering academies of the three countries and divided into three sections:

The first section, “Survey on Cooperation Indicators”, contributes to the annual observation of prevailing trends and conditions in the three countries. The second section, “Fact-finding Survey”, explores technologies within specific domains that demand special attention throughout the year. The third section is designed to gather insights into the respondents’ experiences, and we intend to analyze the information in this section with reference to the results of the first two sections.

This year’s survey focuses on the development trends of artificial intelligence (AI) technologies and related governance issues, as well as topics and public expectations for trilateral cooperation in related fields.

Thank you very much for your participation.

I. Survey on Cooperation Indicators

1. Do you think it is necessary for China, Japan and Korea to engage in technology cooperation?

A. Very necessary

B. Necessary

C. Average

D. Not necessary

2. Do you think technology cooperation between China, Japan and Korea will benefit all three parties?

A. Very much

B. Yes

C. Not so much

D. Not at all

3. In terms of quantity, how would you rate the technological cooperation among China, Japan and Korea?

A. Very high

B. High

C. Average

D. Low

4. In terms of quality, how would you rate the technological cooperation between China, Japan and Korea?

A.Very high

B. High

C. Average

D. Low

5. How do you see the prospect of technology cooperation between China, Japan and Korea?

A.Very optimistic

B. Optimistic

C. Pessimistic

D. Very pessimistic

II. Live-Scenario Survey
— AI Technology and Governance

II-1. Trustworthy and Explainable AI

1. Through what channels have you come into contact with and learned about "Trustworthy and Explainable AI"? ( )

A. Conducted research at the theoretical level

B. Explored the topic from a technical standpoint

C. Followed relevant online information and news reports

D. Heard of the concept but did not pay much attention

E. Never paid any attention

2. Which of the following descriptions do you think best fits the definition of "Trustworthy AI"? ( )

A. It is an artificial intelligence system designed with privacy-enhancing technologies (PETS) that minimizes the probability of privacy invading or other invasive incidents

B. It is an AI system that is process-transparent, result-verifiable, and resource and condition traceable

C. It is an AI system that aligns with the overall interests and ethical expectations of humanity globally, ultimately requiring human acceptance of AI

3. If you were to grade AI systems from a trust perspective, which of the following methods do you think is the most appropriate? ( )

A. Based on the transparency and explainability of technology and algorithms: (1) fully explainable (all decision-making processes are transparent and easy to understand), (2) partially explainable (some decision-making processes are transparent, but some modules may remain black boxes), (3) Unexplainable (decision-making processes are completely opaque). The more explainable a system is, the higher its trustworthiness

B. Based on specific ethical criteria: such as whether it has passed third-party assessments, whether it publicly declares the ethical principles the system adheres to, and whether there have been harmful incidents

C. Based on specific application scenarios and specific uses: similar to the AI risk assessment provided in the EU AI Act, the trustworthiness of AI technology applied in highly sensitive areas, such as social scoring and biometrics, etc. should be appropriately lowered

D. Based on the mode of human-machine collaboration: systems that are fully automated or make autonomous decisions may be considered higher risk, while systems that require human supervision or intervention in the decision-making process may be considered lower risk

E. Unable to confirm the trust level through by specific means

4. What do you think is the relationship between AI explainability and trustworthiness? (multiple choices allowed) ( )

A. No significant difference; there is no need to make an overly distinct separation

B. There is a sequential order in the process. AI explainability can enhance trust

C. Complementary relationship; trust measures and explainability can work together to make AI systems safer and better

D. Mutually exclusive relationship; for example, at the privacy level, enhancing explainability may compress private space, thereby reducing the trust of certain user groups in AI systems

E. They are two different concepts with little connection

5. What do you think are the positive ideas and actions concerning trustworthy and explainable AI in your country? (multiple choices allowed) ( )

A. We have high-quality data, algorithms, and other technical resources

B. A self-disciplined and responsible industry ecosystem has been formed

C. We have a relatively mature, professional, and highly participatory evaluation and auditing mechanism

D. We have guiding and binding regulations and rules

E. Others (please specify) _____

6. What do you think is the biggest difficulty and challenge your country face in establishing trustworthy and explainable AI? ( )

A. Low quality of technical resources such as data, algorithms and models

B. Lack of technology companies with a positive demonstrative impact on the industry

C. Lack of auditing mechanisms or insufficient auditing capabilities

D. Inadequate policies

E. Others (please specify) _____

II-2. Challenges Brought by Large Language Model Content Generation

1. In the process of large language model content generation, what do you think is the most serious ethical issue? ( )

A. Authenticity of content

B. Content bias

C. “Information cocoons”

D. User’s right to know

E. Others (please specify)_____

2. What do you think is the biggest challenge in managing the spread of misinformation and disinformation associated with large language model content generation? ( )

A. Insufficient technical detection capabilities

B. Inadequate law enforcement

C. Limited discernment ability of users

D. High self-discipline costs for enterprises

E. Others (please specify)_____

3. Currently, what do you think is the most effective strategy for managing misinformation and disinformation? ( )

A. Policies and regulations

B. Technical means

C. Community supervision

D. Enterprises self-discipline

E. Others (please specify)_____

4. How would you assess the current development level of Deepfake detection technology? ( )

A. Very advanced

B. Rapidly advancing

C. Progress is slow

D. Lagging behind

E. Others (please specify)_____

5. What do you think is the most critical technological bottleneck that needs to be overcome in the field of Deepfake detection technology? ( )

A. Algorithm accuracy

B. The richness and diversity of the data used for detection

C. Cost of technology deployment

D. Challenges in multimodal scenarios

E. Others (please specify)_____

6. What aspects do you think should be emphasized in the ethical assessment of large language model content generation? (multiple choices allowed) ( )

A. Content authenticity

B. User privacy protection

C. Social impact assessment

D. Others (please specify)_____

7. What standards do you consider essential for the safety assessment of large language model content generation? (multiple choices allowed) ( )

A. Legality of data sources

B. User consent

C. Content review mechanism

D. Human feedback mechanism

E. Others (please specify)_____

8. What would you consider the most effective management strategy to address the diverse challenges brought by large language model content generation? ( )

A. Legal and policy support

B. Technological innovation and development

C. User education and awareness improvement

D. Enterprise autonomy and self-discipline

E. Others (please specify)_____

II-3. AI Governance Policies and International Cooperation

1. **How would you assess the differences in the AI governance policies of China, Japan and Korea? ( )**

   A. Very significant

   B. Notable

   C. Not much

   D. Almost same

   E. No visible difference

2. **How would you assess the current level of international cooperation among China, Japan and Korea in the field of AI? ( )**

   A. Very close

   B. Relatively close

   C. Average

   D. Loose

   E. Very loose

3. **What do you think is the key factor for promoting international cooperation among China, Japan and Korea in the field of AI? ( )**

   A. Policy support

   B. Financial investment

   C. Technological exchange

   D. Cultural understanding

E. Educational cooperation

F. Others (please specify)_____

4. **What do you think is the key factor preventing China, Japan and Korea from closer international cooperation in the field of AI?**

   A. Policy differences

   B. History and culture

   C. International relations

   D. Technological systems

   E. Economic competition

5. **What do you think are your country's strengths in the era of AI? (multiple choices allowed) ( )**

   A. Technological innovation capability

   B. Market size

   C. Policy support

   D. Talent cultivation

   E. Others (please specify)_____

6. **Which international coordination mechanisms do you think are crucial for AI governance? (multiple choices allowed) ( )**

   A. International legal frameworks

   B. Technical standard setting

   C. Data sharing agreements

D. Ethical guidelines

E. Others (please specify)_____

7. What do you think are the potential areas for cooperation among Asian countries in AI governance? (multiple choices allowed) ( )

A. Joint research projects

B. Policy dialogue platforms

C. Technological exchange and cooperation

D. Talent cultivation and exchange

E. Others (please specify)_____

8. How to construct an effective coordination mechanism for AI governance among China, Japan and Korea? (multiple choices allowed) ( )

A. Establish regular trilateral meetings

B. Develop common governance principles

C. Promote cooperation among research institutions

D. Strengthen policy communication and coordination

E. Others (please specify)_____

9. How do you think we could construct a global AI governance model that is inclusive, benefit-sharing, and involves multi-stakeholder participation? (multiple choices allowed) ( )

A. Strengthen multilateral cooperation mechanisms

B. Encourage private sector participation

C. Enhance public awareness and participation

D. Establish global ethical standards

E. Others (please specify)_____

10.Please recommend a successful case of international cooperation on AI and provide the reasons for your recommendation.

11. How do you think China, Japan and Korea could strengthen their collaboration to address the challenges posed by AI?

III. Personal Information

1. Have you participated in any form of technological cooperation among China, Japan, and Korea, or between any two of these countries, within the past five years? If so, how many cooperation projects have you participated in?

If you are from China, please fill in the following blanks.

A. Cooperation with Japan: ( ) projects

B. Cooperation with Korea: ( ) projects

C. Trilateral cooperation: ( ) projects

If you are from Japan, please fill in the following blanks.

A. Cooperation with China: ( ) projects

B. Cooperation with Korea: ( ) projects

C. Trilateral cooperation: ( ) projects

If you are from Korea, please fill in the following blanks.

A. Cooperation with China: ( ) projects

B. Cooperation with Japan: ( ) projects

C. Trilateral cooperation: ( ) projects

2. Your occupation ( )

A. Professor

B. Researcher

C. Enterprise employer or employee

D. Civil servant or public sector employee

E. Others：

3. Your field of expertise ( )

A. Architecture, civil and environmental engineering

B. Mechanical engineering

C. Technology, management and policy

D. Materials and energy engineering

E. Electrical and electronic engineering

F. Chemical and bioengineering

G. Computer science and engineering

H. Biomedical engineering

I. Others (please specify)_____

4. How long have you been working in this field? ( )

A. Less than 5 years

B. 5-10 years

C. 10-20 years

D. Over 20 years

5. Your age ( )

A. 35-49

B. 50-59

C. 60-69

D. 70-79

E. 80 and above

**** If you have any suggestions or feedback regarding this questionnaire, please fill them in below.**

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Thank you very much for completing this questionnaire. The information you provide will be used solely for the purposes of this questionnaire and will not be used for any other purposes.