

Towards AI Network Society

*- How to foster the sound development of AI
as key enabler for Digital Transformation -*

March 19, 2018

Yukiko Tsuchiya

Ministry of Internal Affairs and Communications,
Government of Japan

AI's Impact on Human Society

- Progress of AI's R&D and use
- Evolution of AI networking



- Benefits (e.g. efficiency, added values ...)
- Challenges (e.g. ethics, safety, privacy, ...)



Need to address social, economic, ethical & legal issues.

Services using AI systems will be provided beyond national borders via networks.



Having international discussions is important.

G7 ICT Ministers' Meeting (Takamatsu, Apr. 2016)

Minister Sanae TAKAICHI of Japan proposed that G7 countries take the lead in international discussions taking into consideration the formulation of **“AI R&D Guidelines*”** as a non-regulatory and non-binding international framework. The participating countries agreed to her proposal.

*A tentative proposal on AI R&D Guidelines including 8 principles was distributed before TAKAICHI's proposal.



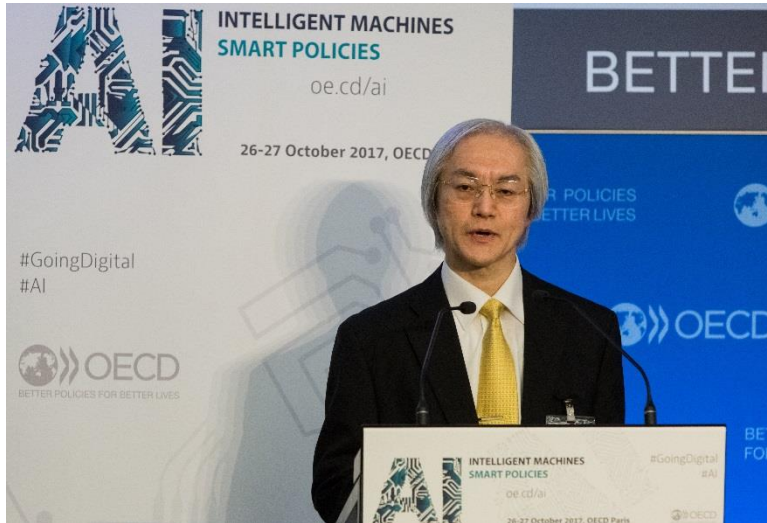
Ministers' Declaration (excerpt)

- We recognise that ... especially **Artificial Intelligence (A.I.) could bring immense benefits to our economies and societies.**
- We share **the vision of human-centric A.I.** which drives innovation and growth in the digital economy.
- We believe that **all stakeholders have a role to play in fostering and promoting an exchange of perspectives,** which should focus on contributing to economic growth and social well-being while promoting the development and innovation of AI.
- We further develop this vision in the “G7 multistakeholder exchange on Human Centric AI for our societies” set forth in Annex 2.....

OECD Conference on Artificial Intelligence (with MIC)

“AI: Intelligent Machines, Smart Policy”

- 26 - 27 October 2017, OECD Conference Center, Paris



Conference toward AI Network Society: An Effort in Japan

In 2016 MIC established “Conference toward AI Network Society”, an advisory expert group to study social, economic, ethical, and legal issues toward promoting AI networking, including:

- assessing impact and risks of AI networking in each of sectors in society
- contributing to the international discussions for formulating AI R&D Guidelines
- studying issues related to the use of AI

Structure

- Experts from industry, academia, private sectors
- with observers from gov't agencies, national research institutes, industry group

Draft AI R&D Guidelines

To increase benefits and mitigate risks in the society by AI systems (thru the sound progress of AI networks), guidelines shared by international multi-stakeholders will be helpful.



For international discussions (e.g. G7, OECD), the Conference prepared **“Draft AI R&D Guidelines”** (July 2017)

- Draft of guidelines on AI research and development (i.e. draft guidelines for AI developers)
- Compiling **“AI R&D Principles”** (with comments)

Thank you.

You can see “Draft AI R&D Guidelines for International Discussions” here.

http://www.soumu.go.jp/main_content/000507517.pdf

(Appendix) Socio-economic Impact of AI Networking

- AI systems are expected to bring huge benefits as well as risks to the society and economy.
- The Conference assessed an impact (mainly benefits) and risks of AI networking, based on scenario analyses for specific use scenes.

Preliminary Assessment (from the viewpoint of AI developers)

- (1) Disaster response,
- (2) Transportation (vehicles),
- (3) Health,
- (4) Education and human resource development,
- (5) Retail and logistics,
- (6) Manufacturing and maintenance,
- (7) Agriculture,
- (8) Finance (loan),
- (9) Public works and infrastructure,
- (10) Living

Assessment by Use Field (from the viewpoint of AI users)

[Public]	<u>Town development</u> , Public governance, Crisis management
[Individuals]	<u>Health</u> , Transportation, Living, Education/learning, Work, Property, Hobbies/entertainments
[Industry]	<u>Products</u> , Money

*Assessment is done for three areas in RED.

Basic Philosophies

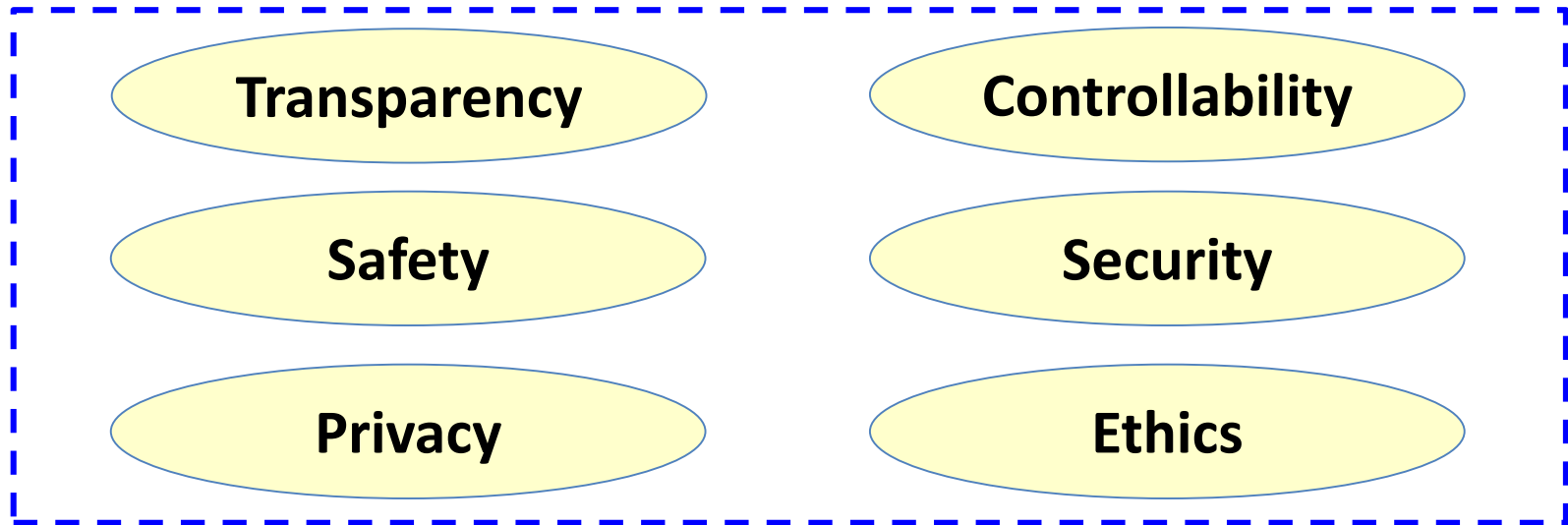
1. **Achieve a human-centered society.**
2. Share the Guidelines as ***non-binding soft law*** and their best practices among stakeholders internationally.
3. Ensure a balance between benefits & risks of AI networks.
4. Ensure technological neutrality, avoid excessive burden on developers.
5. Constantly review the Guidelines and flexibly revise them as necessary.

(Appendix) Draft AI R&D Guidelines : Principles

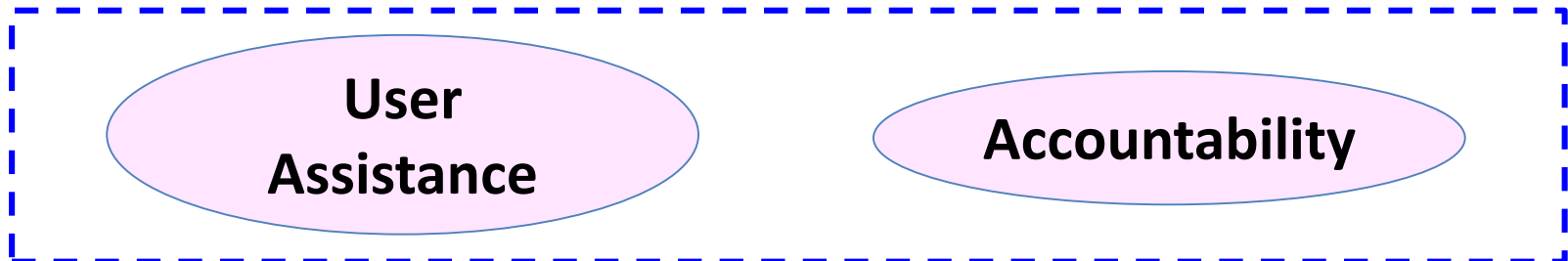
To promote benefits of AI systems



To mitigate risks of AI systems



To improve acceptance by users and other stakeholders



(Appendix) Draft AI R&D Guidelines : Principles

Principle of:	Developers should:
Collaboration	Pay attention to the interconnectivity and interoperability of AI systems.
Transparency	Pay attention to the verifiability of inputs/outputs of AI systems and explainability of their judgments.
Controllability	Pay attention to the controllability of AI systems.
Safety	Take it into consideration that AI systems will not harm the life, body or property of users or third parties through actuators or other devices.
Security	Pay attention to the security of AI systems.
Privacy	Take it into consideration that AI systems will not infringe the privacy of users or third parties.
Ethics	Respect human dignity and individual autonomy in R&D of AI systems.
User assistance	Take it into consideration that AI systems will support users and make it possible to give them opportunities for choice in appropriate manners.
Accountability	Make efforts to fulfill their accountability to stakeholders including users of AI systems.

【Annex 2】“G7 Multistakeholder Exchange on Human Centric AI for Our Societies” (excerpt)

“ . . . Building on the debate initiated by the 2016 G7 ICT Ministerial in Takamatsu, national and international events have been held to foster exchange of views (for example **“A.I. R&D Guidelines” organized by the Conference of Advisory Experts of Japan’s Ministry of Internal Affairs and Communications**). We recognise the need for further information sharing and discussion, to deepen our understanding of the multifaceted opportunities and challenges brought by A.I. . . . ”