13:15 – 15:15 Session 2

13:15 – 13:35: Prof. Otto (Germany) In English

13:35 – 13:55: Prof. Ragu (U.S.) In English

13:35 – 14:15: Prof. Kondoh (Japan) In Japanese

14:15 – 15:15: Panel discussion: In Japanese

Industrial Transformation in the Age of AI: Perspectives and Challenges from Japan, the United States, and Germany

AIST Create the Future, Collaborate Together

Prof. Otto (Germany)

- Shared industrial data and digital twins as the sources of industry-specific foundation models
- Deployment of AI agents post-tuned by the foundation models within individual companies across industrial data ecosystems.
- Competitive business models on smart data ecosystems driven by multilateral partnership on data

Prof. Ragu (U.S.)

- Evolution from smart manufacturing toward generative, agentic, and Physical AI
- Trusted and contextualized manufacturing data as the foundation for scalable industrial AI
- Human-centered progression from AI-assisted decision support toward bounded and supervised autonomy

Prof. Kondoh (Japan)

- Current limitations: data sharing, integrated design at upstream, legacy assets, and AI investment
- Opportunities on AI-supported transformation in shop floors and production lines, front-loading of model-based engineering
- Human-centered cyber-physical systems as foundations for industrial transformation for people

Q1: What will industrial collaboration look like in the Age of AI in the manufacturing domain?

- Trusted exchange of data, models, and digital-twin information
- Cross-company deployment of industrial AI agents
- Smart data ecosystems connecting multiple industrial participants from a business view

Q2: How far should industrial AI move toward autonomy?

- Human augmentation as the initial stage of industrial AI
- Bounded and supervised autonomy for consequential industrial decisions
- Human's domain knowledge and responsibility in increasingly autonomous systems

Q3: How can established industrial companies overcome legacy systems and digital gaps?

- Integration and modernization of legacy industrial assets
- AI-enabled transition toward data-driven and model-based engineering
- Opportunities for technological leapfrogging rather than incremental catch-up

Q4: What developments should we watch particularly carefully, and what should industry and society begin preparing for today?

- The value of human's expertise as AI takes on increasingly sophisticated tasks
- New concerns around safety, cybersecurity, and accountability of AI powered manufacturing systems
- The broader resilience of industry and society, including dependence on AI and digital infrastructure, concentration of technological capabilities

Q5: What will be the major social impacts and international collaborations along with advanced manufacturing in the Age of AI?

- Consideration of differences in individual countries regarding labor markets, demographic conditions, educational systems, and approaches to technology.
- Perspectives on concrete international initiatives that are valuable for all countries to collaborate and complement one another, beyond national-level differences.