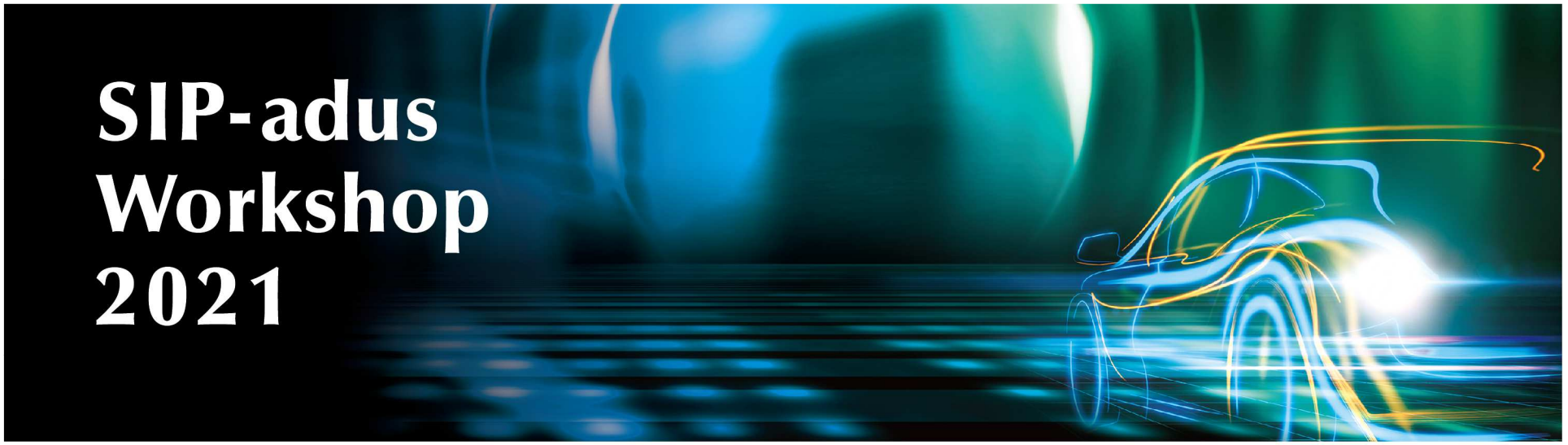


Human Factors Breakout session

Opening

Moderator: Satoshi Kitazaki, Ph.D.
Assistant: Yanbin Wu, Ph.D.
National Institute of Advanced Industrial Science and Technology (AIST)

Focus

Human Factors in automated mobility services.

Presenters

1. Klaus Bengler, Technical University Munich, Germany
2. Daniel McGehee, University of Iowa, US
3. Annika Dreßler, DLR, Germany
4. Jonas Andersson, RISE, Sweden
5. Joanne Harbluk, Transport Canada, Canada
6. Naohisa Hashimoto, AIST, Japan

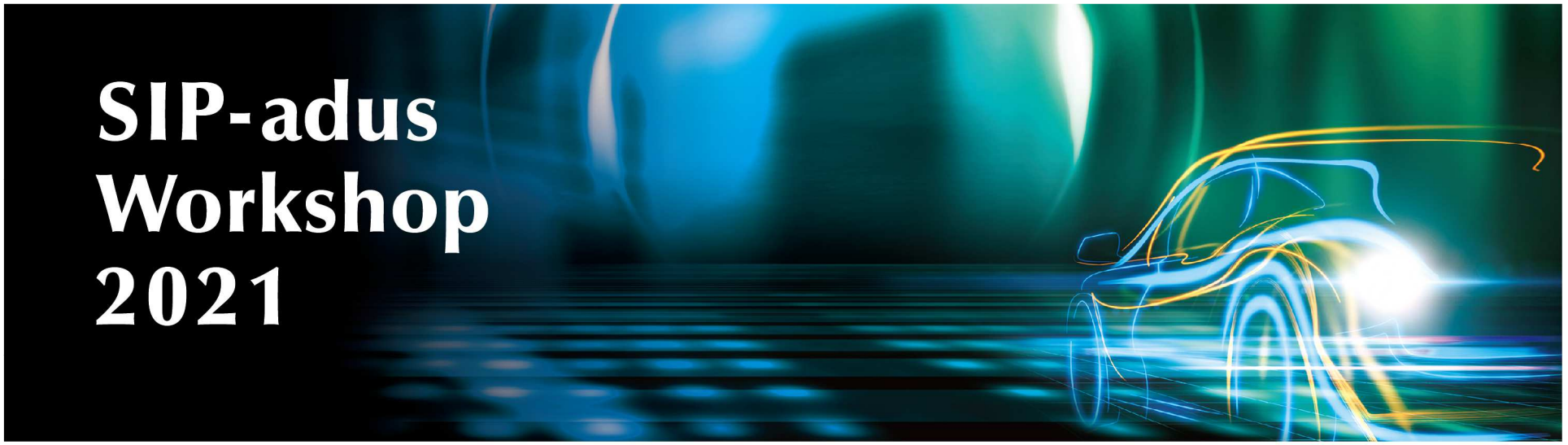
※ All presentations will include a common last page answering the questions listed below.

Question 1: What is the most important research questions/challenges?

Question 2: What aspects should/can be internationally standardized?

※ Q&A time will follow each presentation

Please use the “Q&A function” or “raise hand” to ask question（s)



Human Factors Breakout session

Summary

Moderator: Satoshi Kitazaki, Ph.D.
Assistant: Yanbin Wu, Ph.D.
National Institute of Advanced Industrial Science and Technology (AIST)

Summary: Research questions/challenges

Question 1: What is the most important research questions/challenges?

➢ **ODD**

- Probability of events (i.e. technical reliability).
- Characteristic of events (sensoric, infrastructure, passengers, other road users).
- Complex environment.

➢ **MRM**

- Definition of potential MRMs.

➢ **HMI**

- Optimized HMI on the guidance level.

➢ **Remote operator**

- Human reliability in teleoperation.
- Design of work environment, tasks and coordination for Remote Monitor, Assistant and Operator.

➢ **Passengers**

- Passenger needs on transit where there is no on-board operator.

➢ **Design process**

- Working models for fleet operation.

➢ **Complexity**

- Many… but my argument here is not to forget the broader systems perspective and how to approach that complexity.
- There is a need to understand and organize the various use cases and address safety considerations.

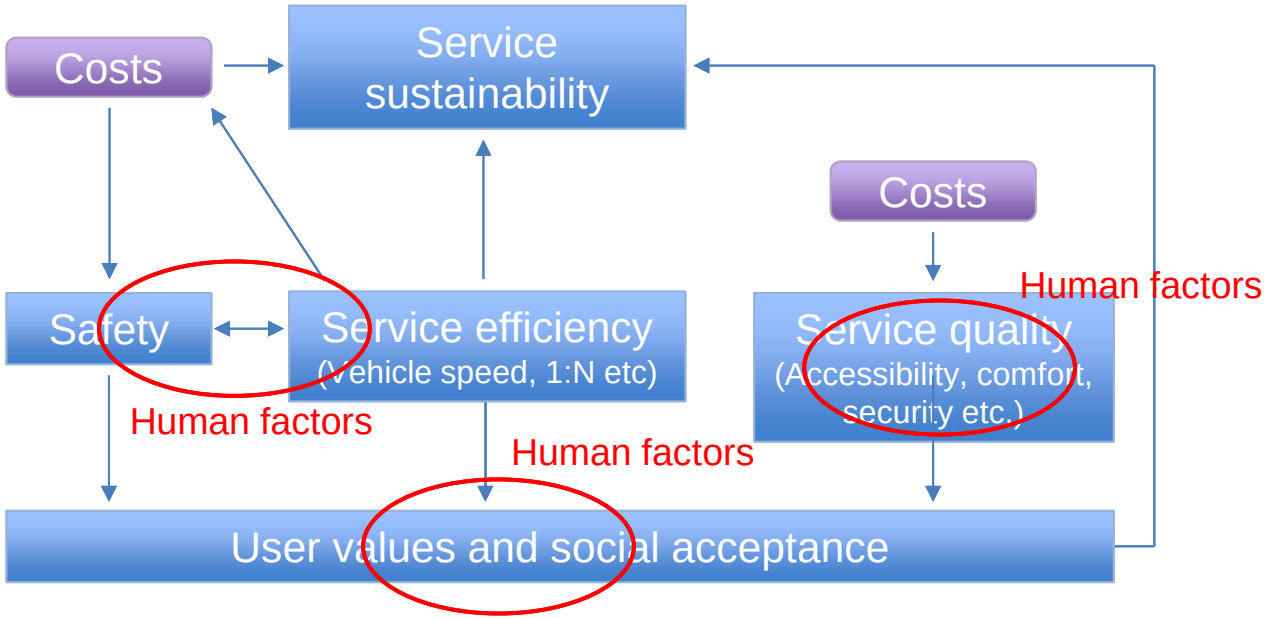
➢ **Social/user acceptance**

- Managing the public's expectations about what automation means.
  - Automation is greatly overmarketed.
  - ODD is critical to discuss in any public forum.
  - Give examples and be clear that home to work or play automation is decades away.
- How can we use the current possibilities in technology to create efficient mobility offers capable to compete with individual transport?
- How can we make these offers accessible to all?
- "Acceptance" (Whether User and Residents can accept).
- Different requirements for various transit service models.
- Importance of public acceptance of new mobility technologies.

SIP

HF Challenges – my thoughts

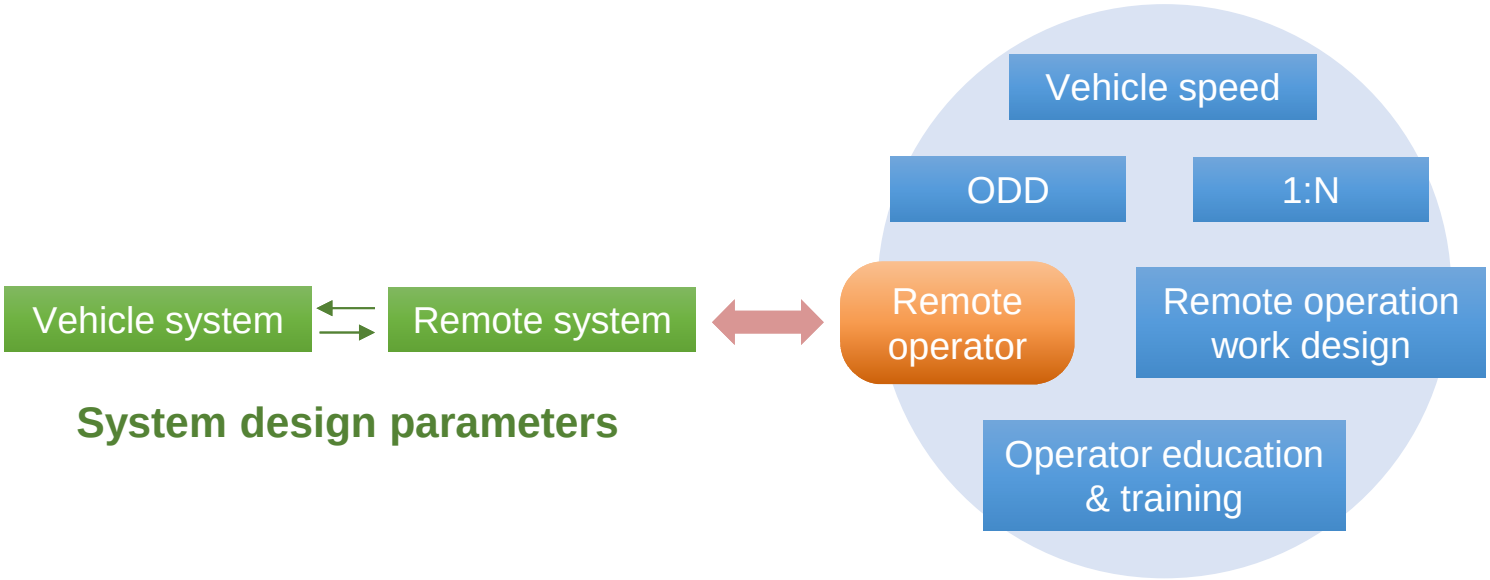
Automated mobility services need to satisfy various aspects of users, service providers and the society.



Complicated!

HF Challenges – my thoughts

Both safety and service efficiency criteria need to be satisfied by optimization of system design parameters and service design parameters.



Summary: International standardization

Question 2: What aspects should/can be internationally standardized?

■ Positive

➢ **ODD**

- Probability of events (i.e. technical reliability).
- Characteristic of events (sensoric, infrastructure, passengers, other road users).

➢ **MRM**

- Definition of potential MRMs.

➢ **HMI**

- Optimized HMI on the guidance level.

➢ **Remote operator**

- Human reliability in teleoperation.

➢ **Telecommunication**

- Requirements for communication vehicles/passengers and control/service center.

➢ **Design process**

- User-centered design process.
- Working models for fleet operation.

➢ **Validation**

- Validation procedures for testing autonomous driving functions.

■ Negative

- Automated driving is largely not an OEM process as before.
  - Computer and start-up don't play by the same rules as the OEMs.
  - Their work is too proprietary and dynamic (e.g., over air updates) to wait for consensus standards.

※This information will be forwarded to ISO/TC22/SC39/WG8.

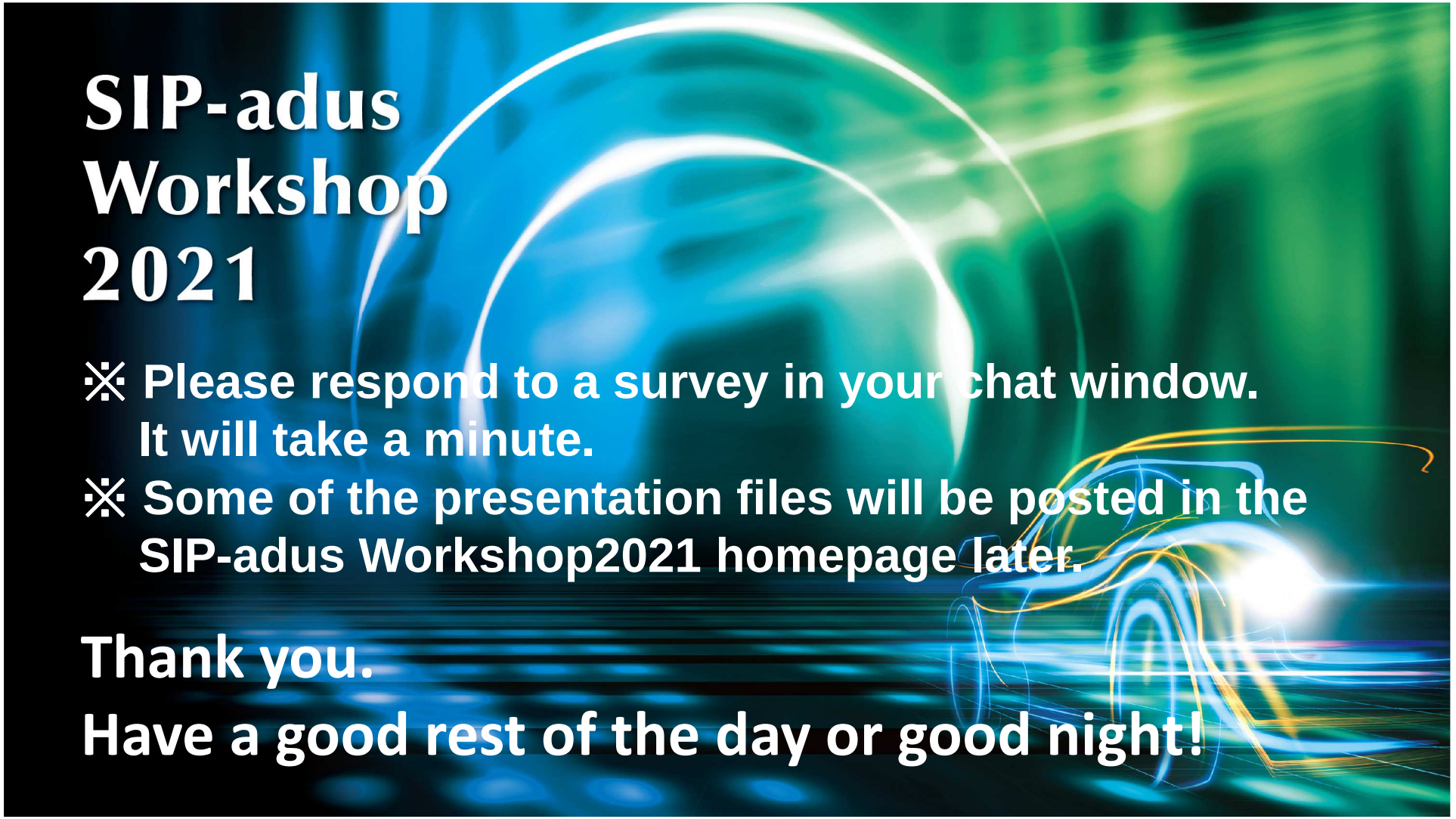
Plenary session on November 9

Plenary Session (as of October 15)		
	November 09 start at 9:00 (JST)	No start
AM (JST)	Opening / Regional Activities	Dynamic Map
	Impact Assessment	Connected Vehicles
PM (JST)	Service and Business Implementation / FOTs + Human Factors (Joint Session)	Safety Assurance
		Cybersecurity
	Japanese Government	Closing
for Europe	start at 9:30 (CET) / 17:30 (JST)	start at 9:3(
for Americas	start at 11:00 (EST) / *1:00 (JST)	start at 11:0

General information on automated mobility service trials.

Presenters

- Jan Hellaker, Chairman, Drive Sweden, Sweden
- Lutz Eckstein, Director, Institute for Automotive Engineering, RWTH Aachen University, Germany
- Katrin Schwager, Project Manager, Innovation and Change, Hamburger Hochbahn AG, Germany
- Shin Kato, Prime Senior Researcher, Human-Centered Mobility Research Center, AIST, Japan
- Daniel McGehee, Professor and Director, NADS, University of Iowa, USA
- Timothy Haile, Executive Director, Contra Costa Transportation Authority, USA
- Habib Shamskhou, President, Advanced Mobility Group, USA
- Jordana Maisel, Assistant Professor, Urban and Regional Planning, University at Buffalo, State University of New York, USA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※ Please respond to a survey in your chat window.
It will take a minute.
※ Some of the presentation files will be posted in the
SIP-adus Workshop2021 homepage later.
Thank you.
Have a good rest of the day or good night!