SIP-adus Phase 2
Human Factors Research Project

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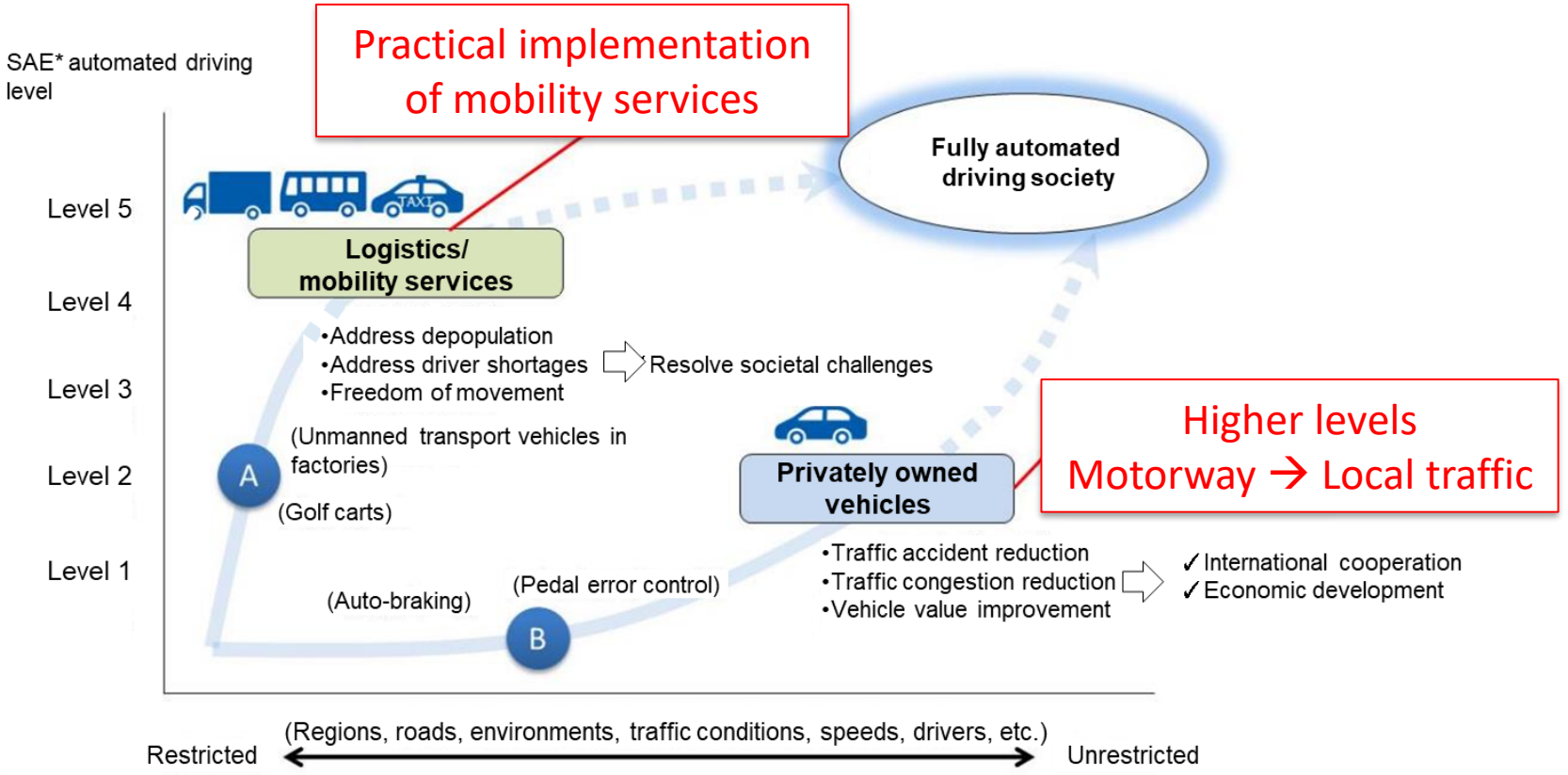
SIP

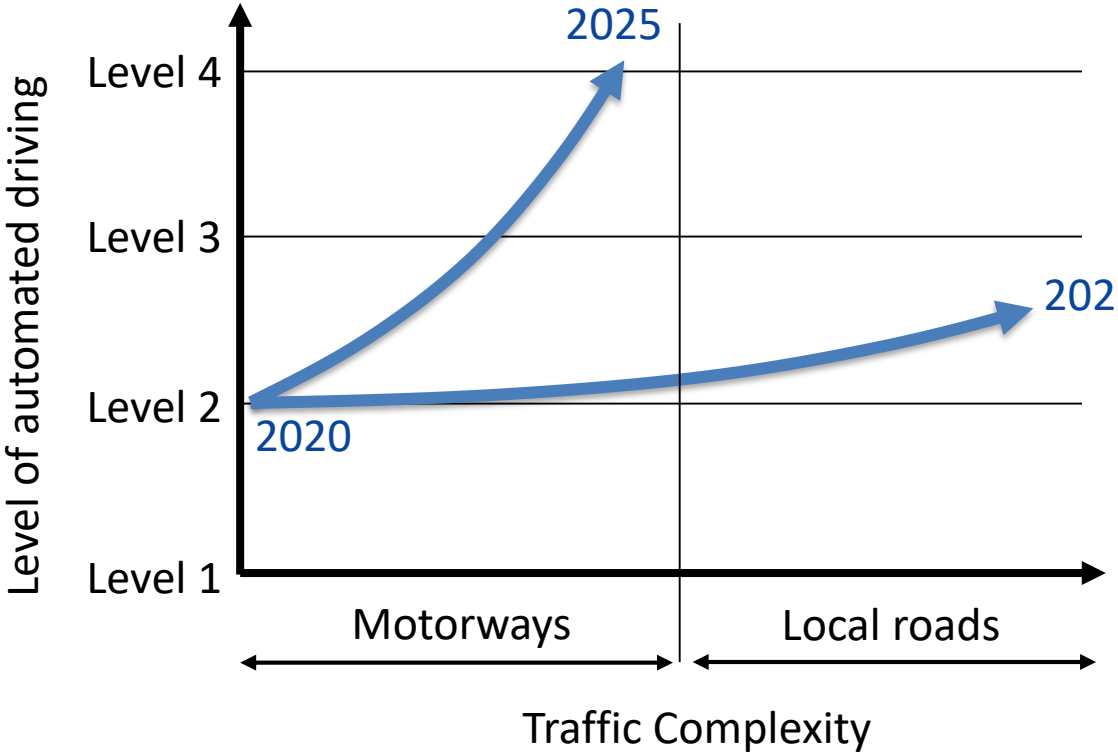
Cabinet Office

SIP-adus Phase 2 Roadmap



Government's ITS Roadmap for private AV cars

Higher levels on motorways



Tasks of the project

Task A: Investigation of External communication of AVs with other road users.

Task B: Investigation of interaction between the driver and the system.

Task C: Investigation of user education.

Task A: External communication of AV

A-1) Negative effects of external HMI and design principle to minimize it.

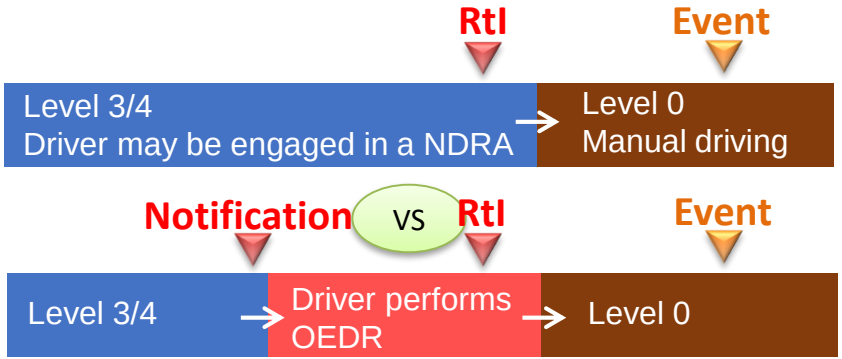
External HMI may draw too much attention of pedestrians and cause “Thank you crash”.

A-2) External communication of low speed AVs in last-mile services.

- Cooperation with the last-mile service experiments at “Road Stations” conducted by MLIT.
- Focus on “Road Stations” near isolated villages in mountainous areas.
- Low speed may produce new needs for external communication.
- Larger dependence on external HMIs due to small vehicle motion with low speed.

Task B: Interaction between the driver and the system

B-1) Protocols for safer transition from Level 3/4 to manual on motorways.



Transition protocols

- To minimize the mode confusion.
- To induce the best takeover performance.

B-2) OEDR monitoring, HMI, ODD definitions for safer deployment of Level 2 to local traffic.

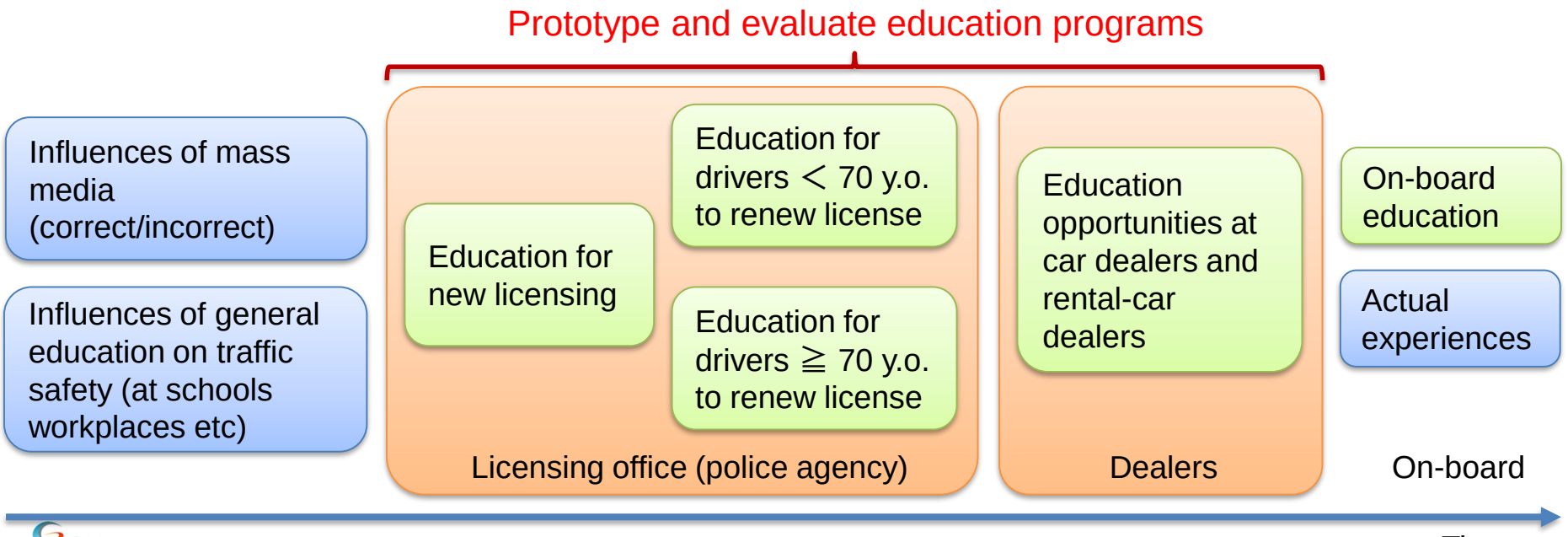
For secure driver-initiated takeovers

- Monitoring driver's OEDR task performance all the time.
- A HMI that informs the driver of detected/undetected objects and generates a correct "mental model" for swift takeovers.
- Upper limit of complexity (ODD) for safe deployment.

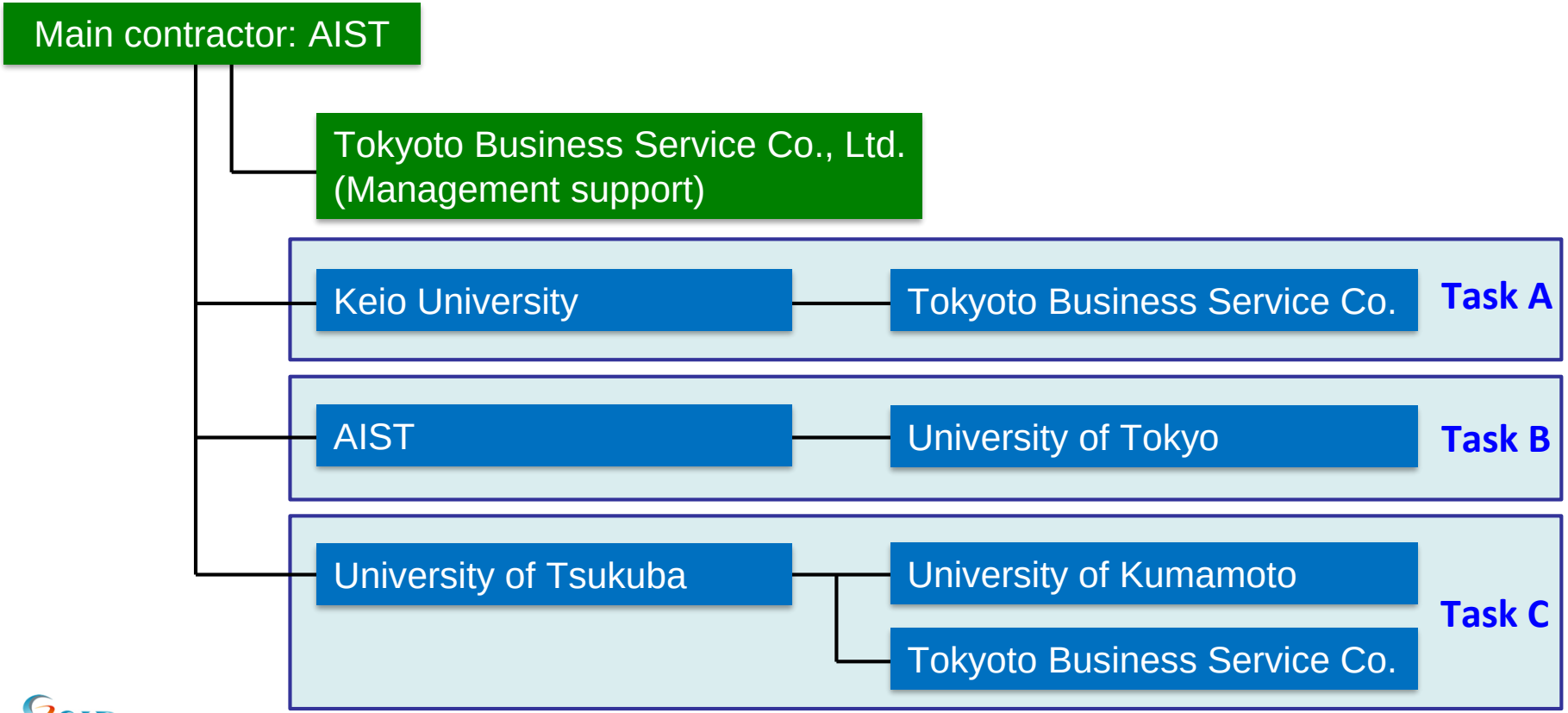
Task C: User education

C-1) Education at licensing office for fundamental knowledge common across systems (Level 3) of different manufacturers

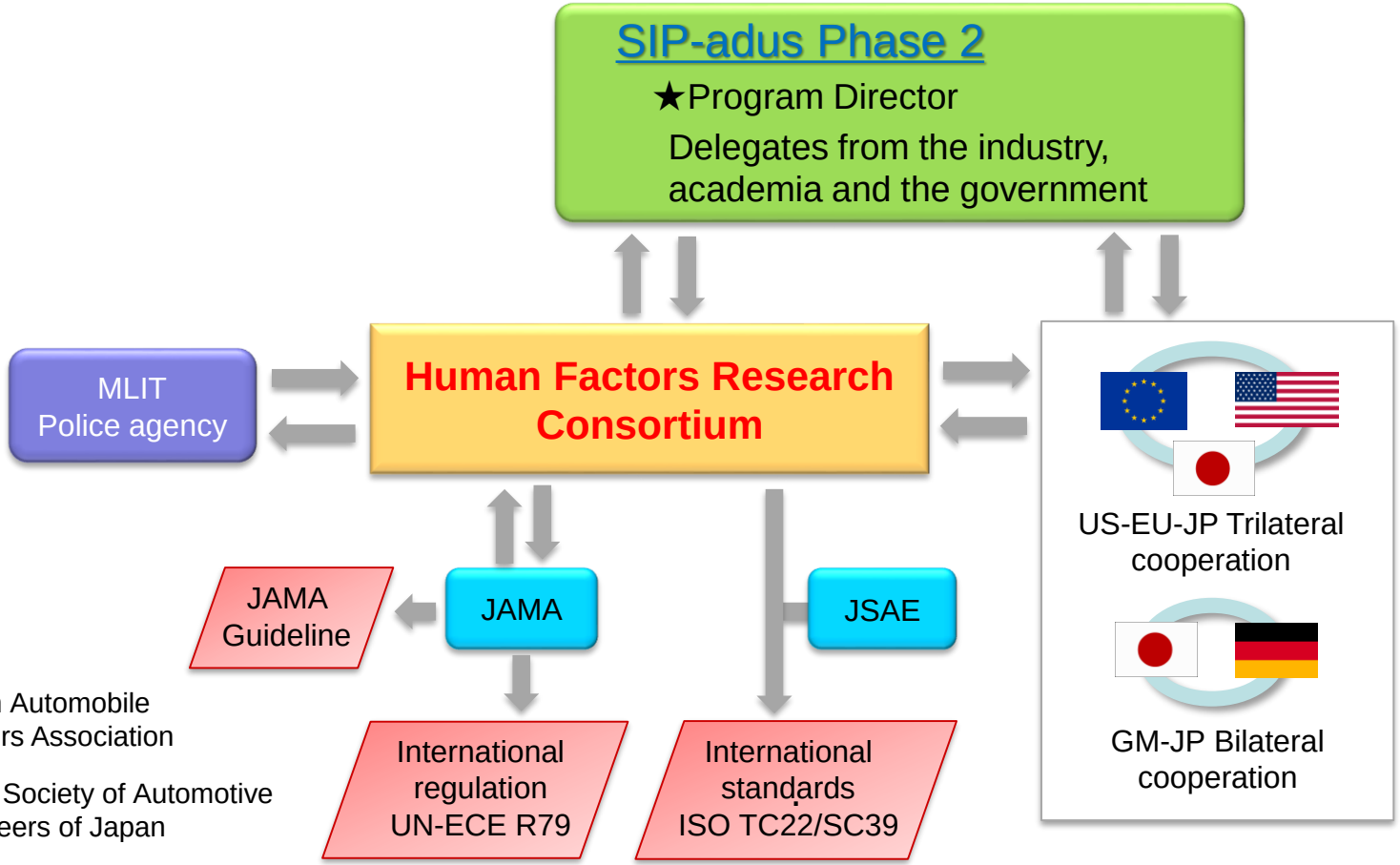
C-2) Education at car-dealers for knowledge specific for a system of the manufacturer.



Research consortium



Domestic and international collaborations



※JAMA：Japan Automobile Manufacturers Association

※JSAE: Society of Automotive Engineers of Japan

Germany-Japan cooperation on Human Factors

- Purpose of collaboration:
  - Accelerate successful introduction of safe automated vehicle technology by this collaboration.
  - Increase social acceptance of automated systems for broader international markets based on cross-cultural comparisons and considerations of obtained results.
- Coordinators: Klaus Bengler (TU Munich) & Satoshi Kitazaki (AIST)
- Period: Q3 2019 – Q1 2022
- Collaboration scheme:
  - Biannual workshops
  - Exchanging staff and students
  - Exchanging lecturing
  - Coauthoring papers

Work Package		Japanese members	German members
WP1	External communication (Task A)	Keio U Tokyoto BS Co.	TU Chemnitz TU Dresden Ulm U TU Munich DLR
WP2	Education and training (Task C)	U of Tsukuba U of Kumamoto Tokyoto BS Co.	TU Dresden TU Munich
WP3	Drivers' interaction with automated systems (Task B)	AIST U of Tokyo	TU Munich Ulm U

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