SIP-adus Activities Report

— Impact Assessment —

Cross-Ministerial Strategic Innovation Promotion Program
Innovation of Automated Driving for Universal Services

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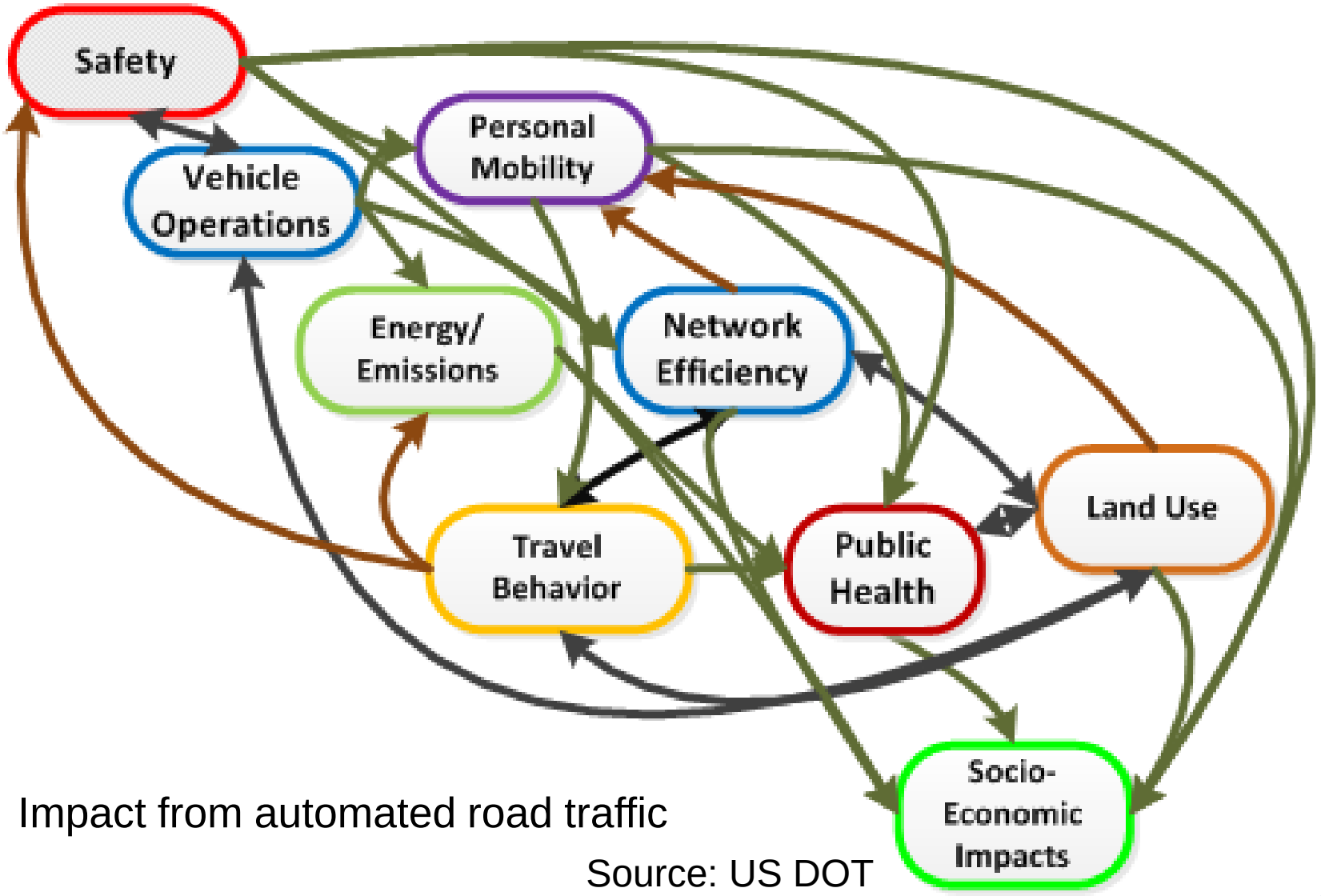
<Translated Version>

Today's agenda

1. International cooperation activities (Trilateral "Impact Assessment" Study Group)
2. Trends in overseas projects (Europe: "AdaptIVe")
3. Simulation development at SIP-adus

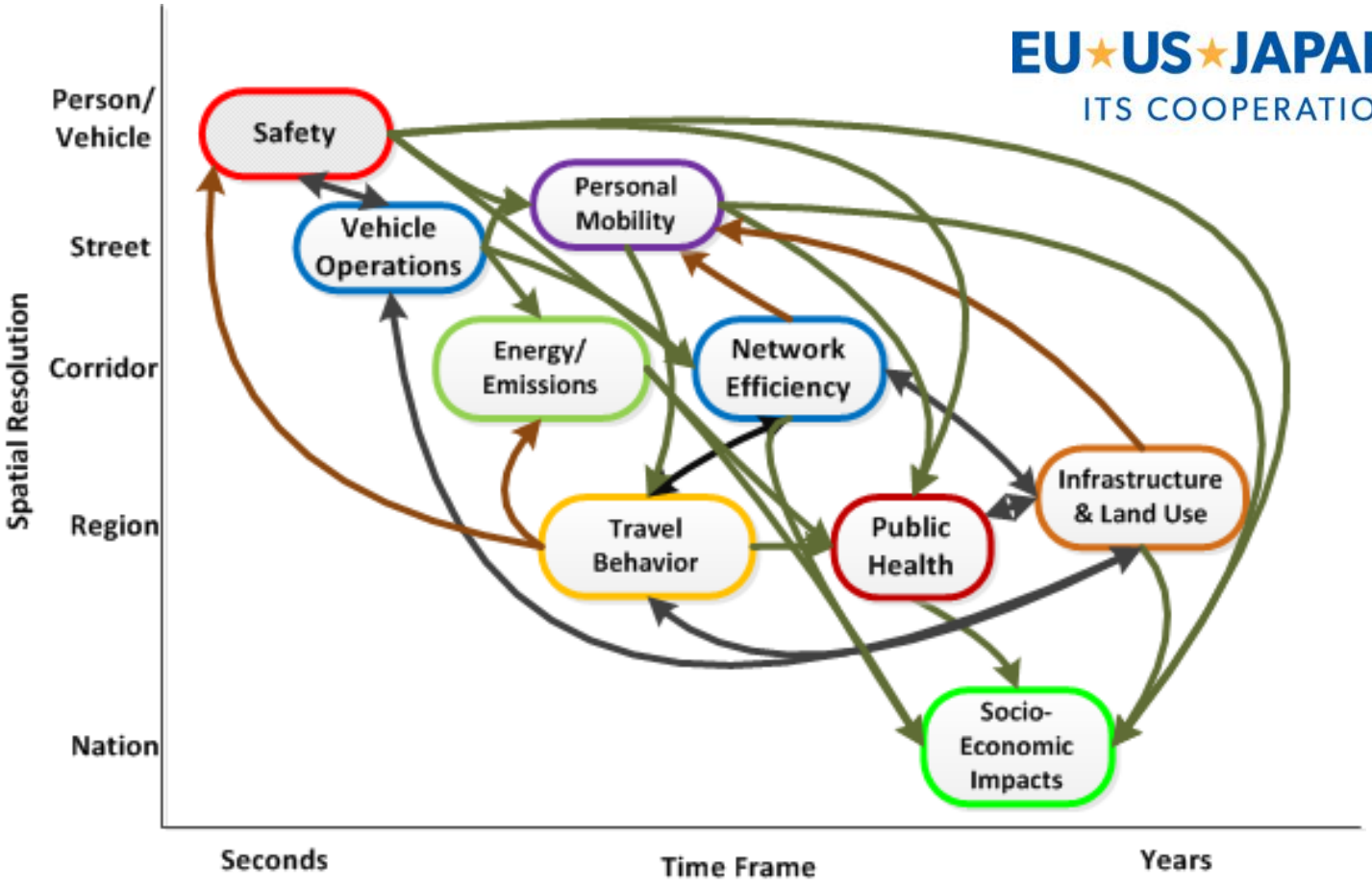
1. International cooperation activities



Impact from automated road traffic

Source: US DOT

Trilateral “Impact Assessment” Study Group



EU★US★JAPAN ITS COOPERATION

- US
- Japan
- Europe

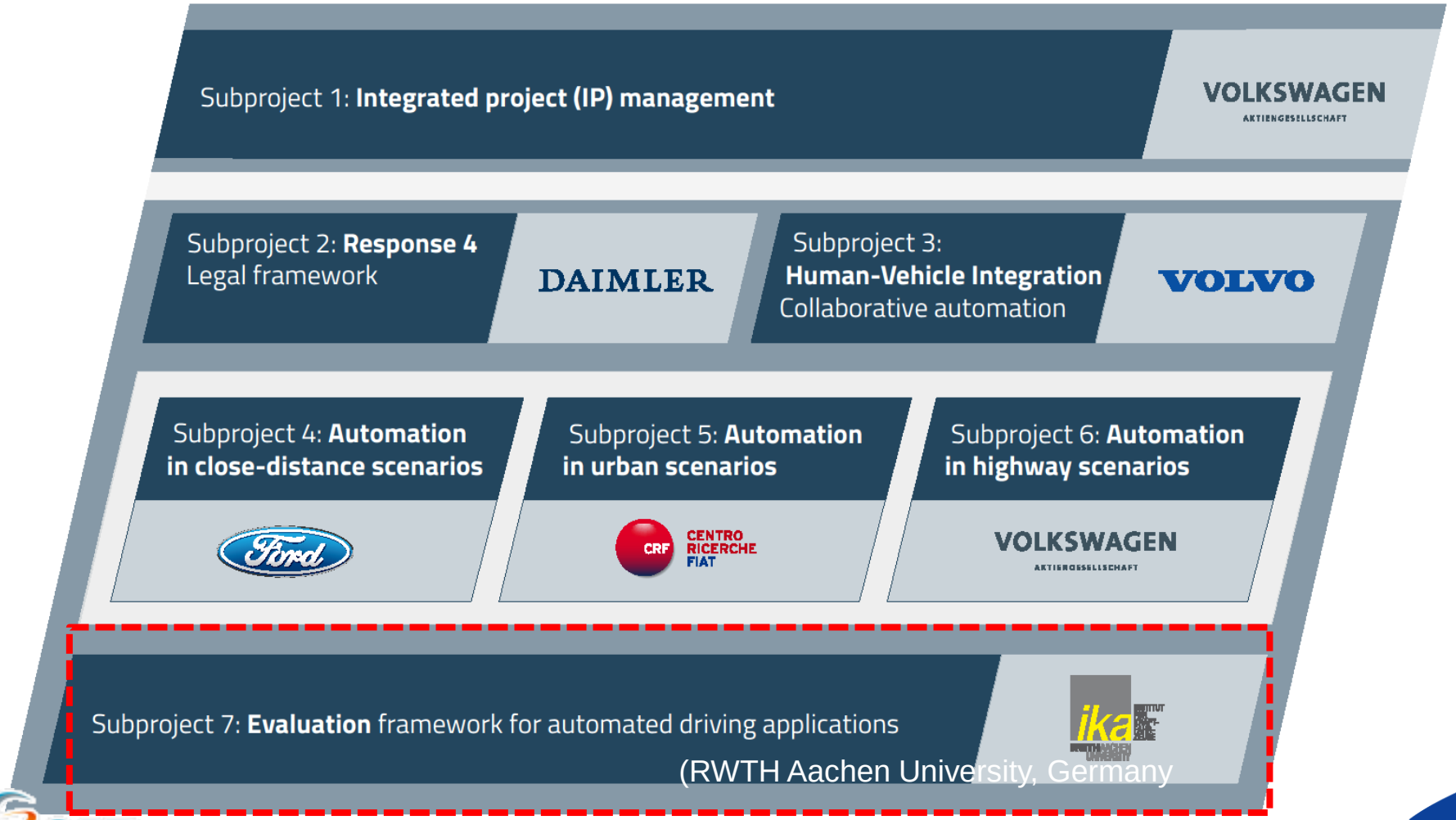
(Finland, Sweden, UK, the Netherlands, France, Greece, Belgium, Italy, Germany)

- Sharing of framework to assess potential impact of automated driving
- Plan to discuss harmonization of key performance indicators (KPIs) in various fields

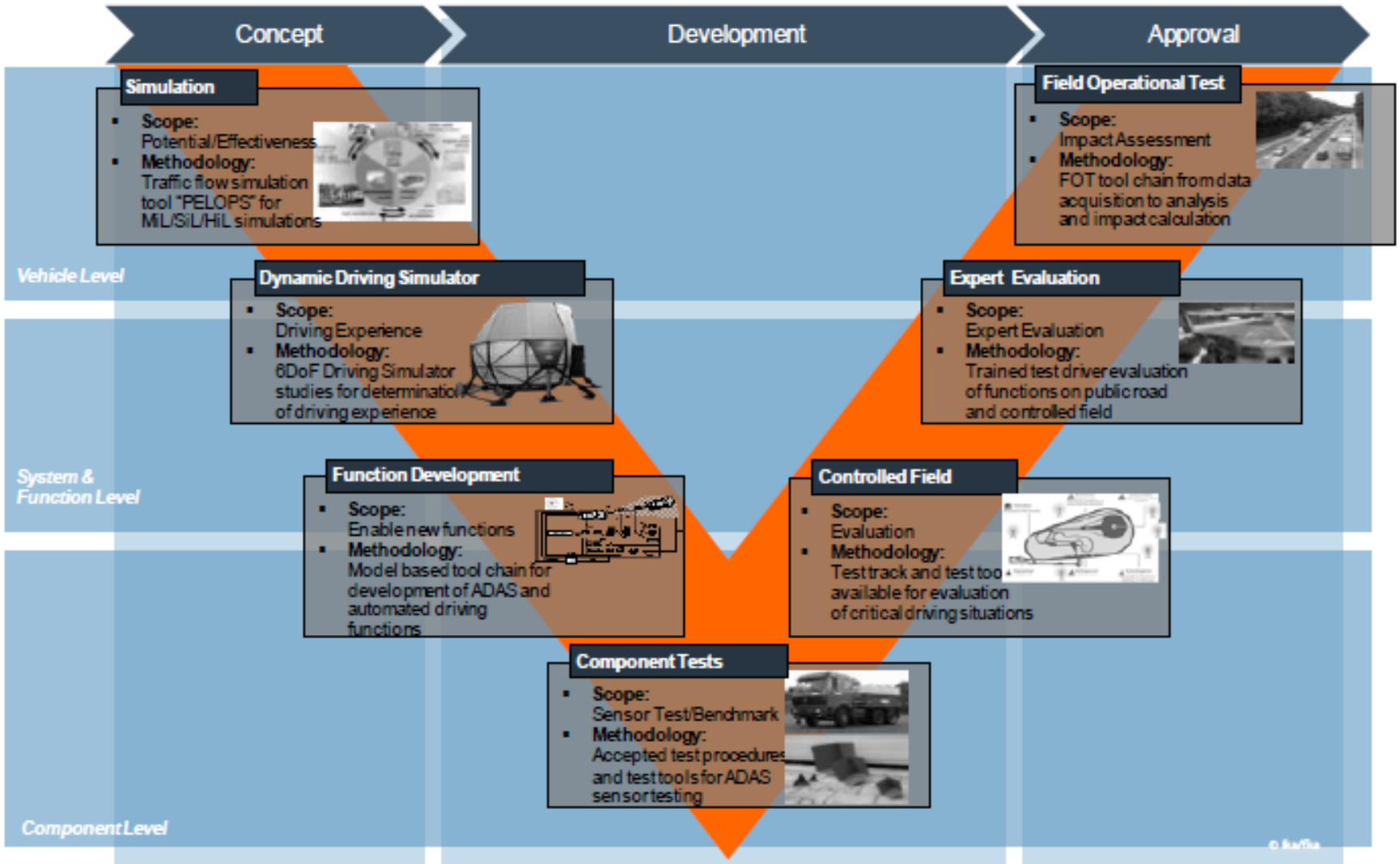
2. Europe: AdaptIVe project

Research period: 2014–2017

Purpose: Field operational tests for automated systems assuming highway or urban settings

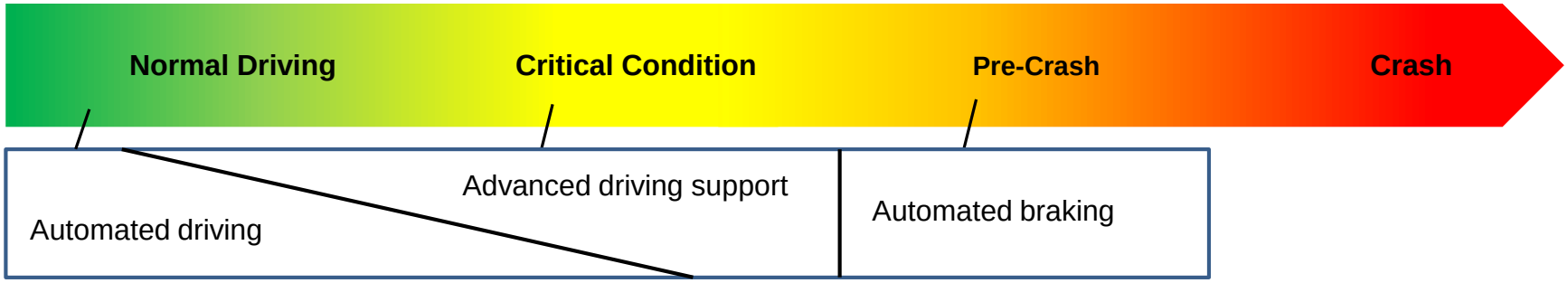


Assessment tools for automated system development process



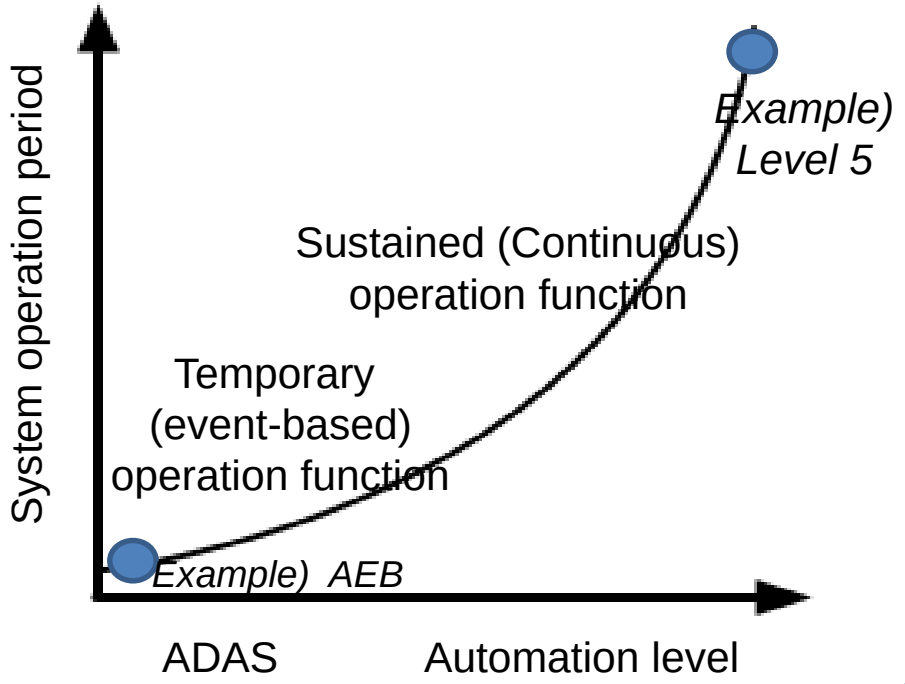
Presentation of issues facing impact assessment for AdaptIVe

○ Issues facing impact assessment of automated driving



Difficulties in assessing automated driving functions with existing advanced driver assistance system (ADAS) assessment methods

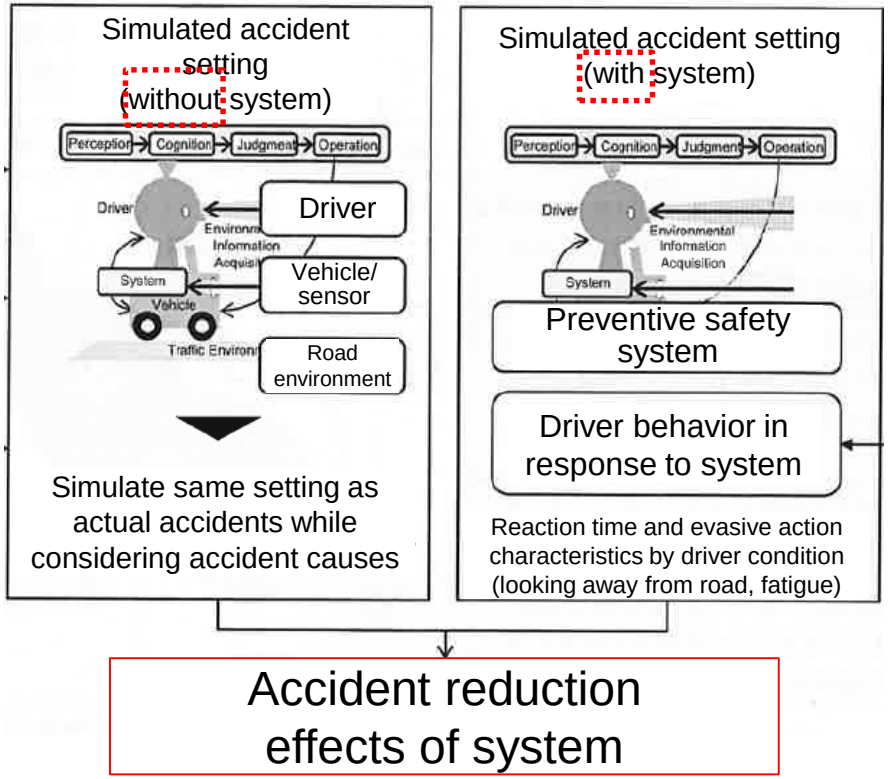
Need for new methods to assess safety improvement



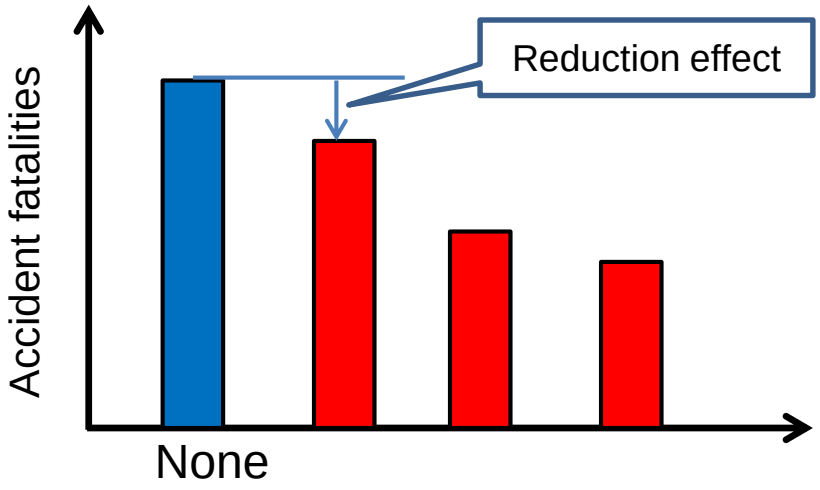
3. Simulation development at SIP-adus

Simulation technology that enables quantitative estimates of detailed accident reduction effects provided by automated driving systems

Accident reduction effect measurement method



Representation of output using simulator



Automated driving technology deployment and evolution

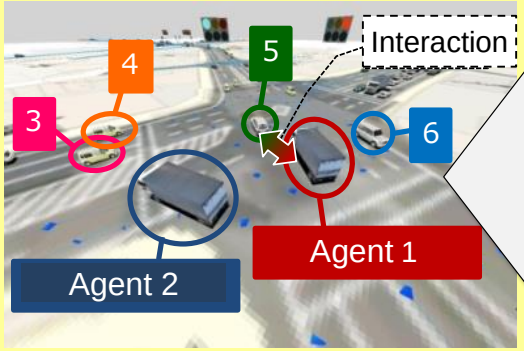
Simulations to be developed

Simulation requirements: “Reproduction of normal settings” and “independent behavior”

[Requirement 1] Simulation that reproduces traffic environment

1. Reproduce traffic environment for a region with a certain range
2. Reproduce realistic traffic flow based on interaction among traffic participants and without identifying accident settings
3. Accidents caused inadvertently through driver error, etc.

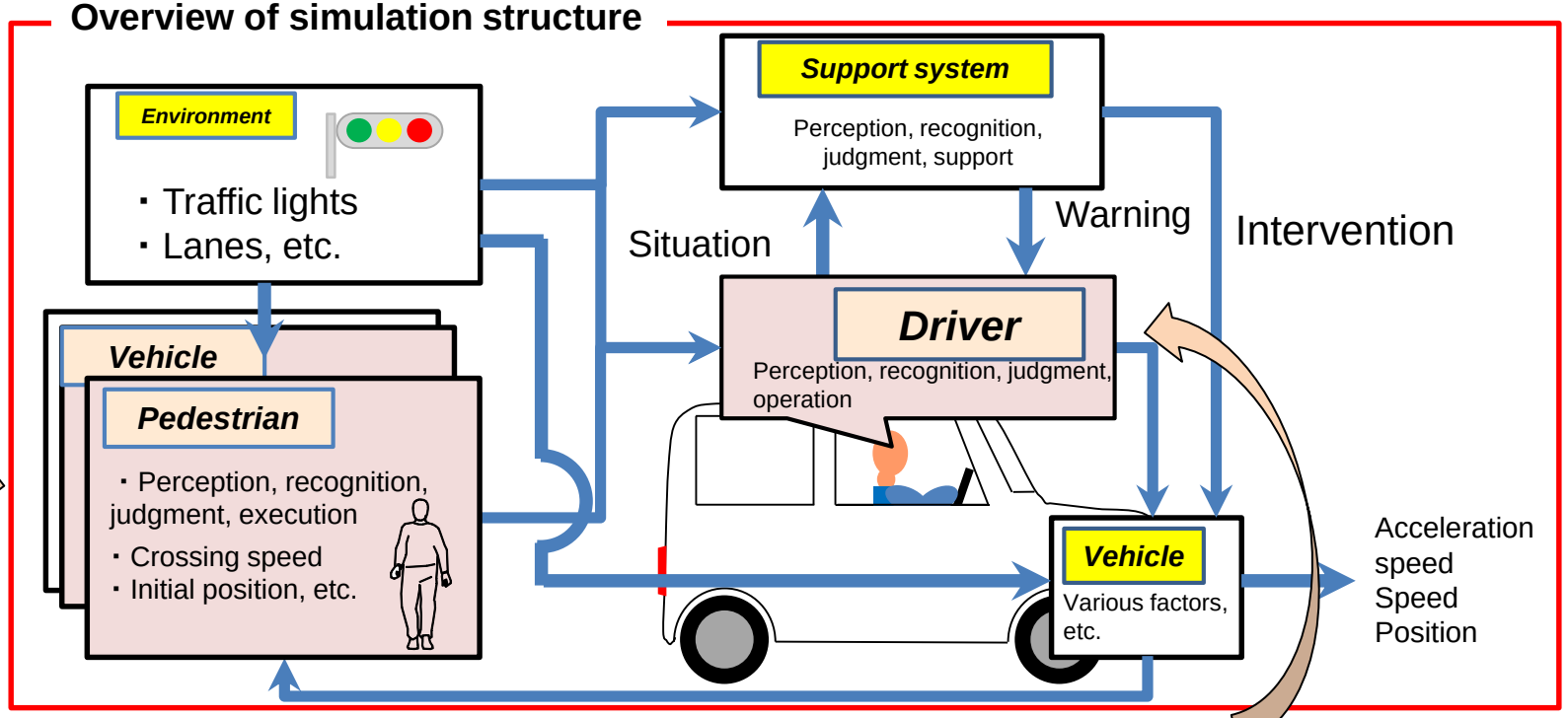
[Requirement 2] Multi-agent traffic participants behaving independently

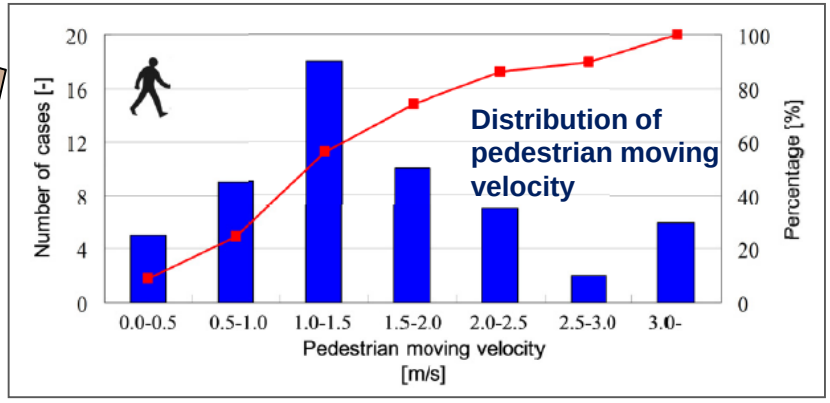


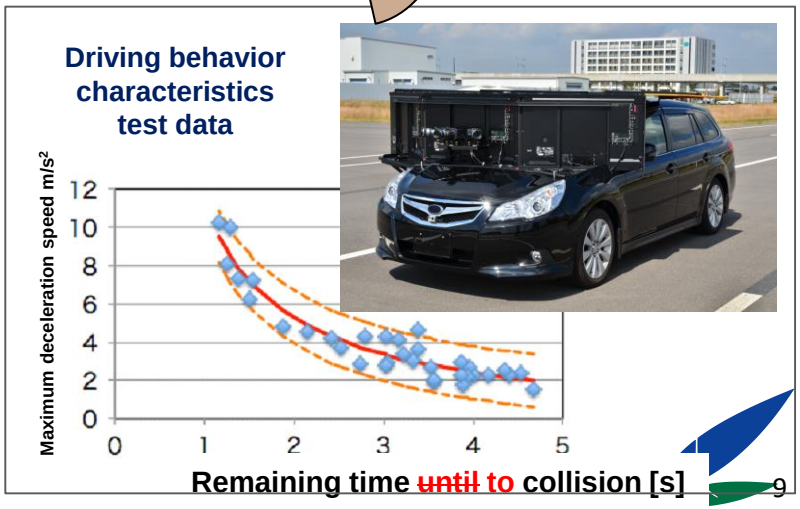
1. Turn drivers and pedestrians into agents
2. Each agent independently conducts recognition, judgment, and operation (action)
3. Impact of behavior of particular agent on behavior of other agent

Key points for development of SIP-adus simulation

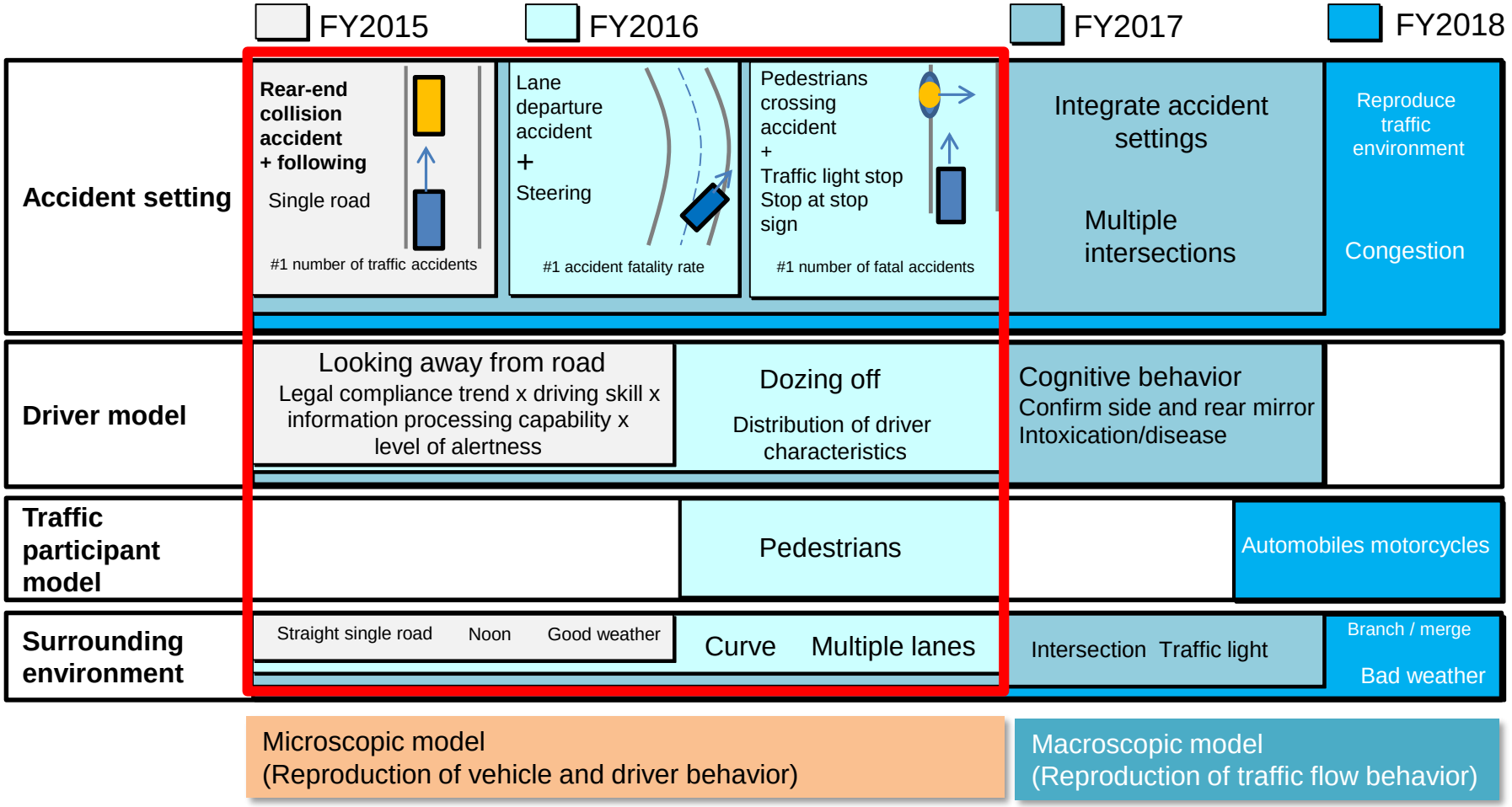
Overview of simulation structure







Development schedule



Final form: Hybrid model to estimate effects of automated driving systems

Summary

1. Trilateral “Impact Assessment” Study Group (International cooperation activities)
   - Impact assessment framework based on automated driving technology
2. Trends in overseas projects (Europe: AdaptIVe)
   - Assessment method for automated driving system effects (2017.6 Final Demo)
3. Simulation development at SIP-adus
   - Assessment of automated driving system effects based on reproduction of traffic environment (scheduled between FY2017 and FY2018)