

ITS World Congress 2017 SIS59



SIP-adus FOT

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SIP-adus International Cooperation Working Group

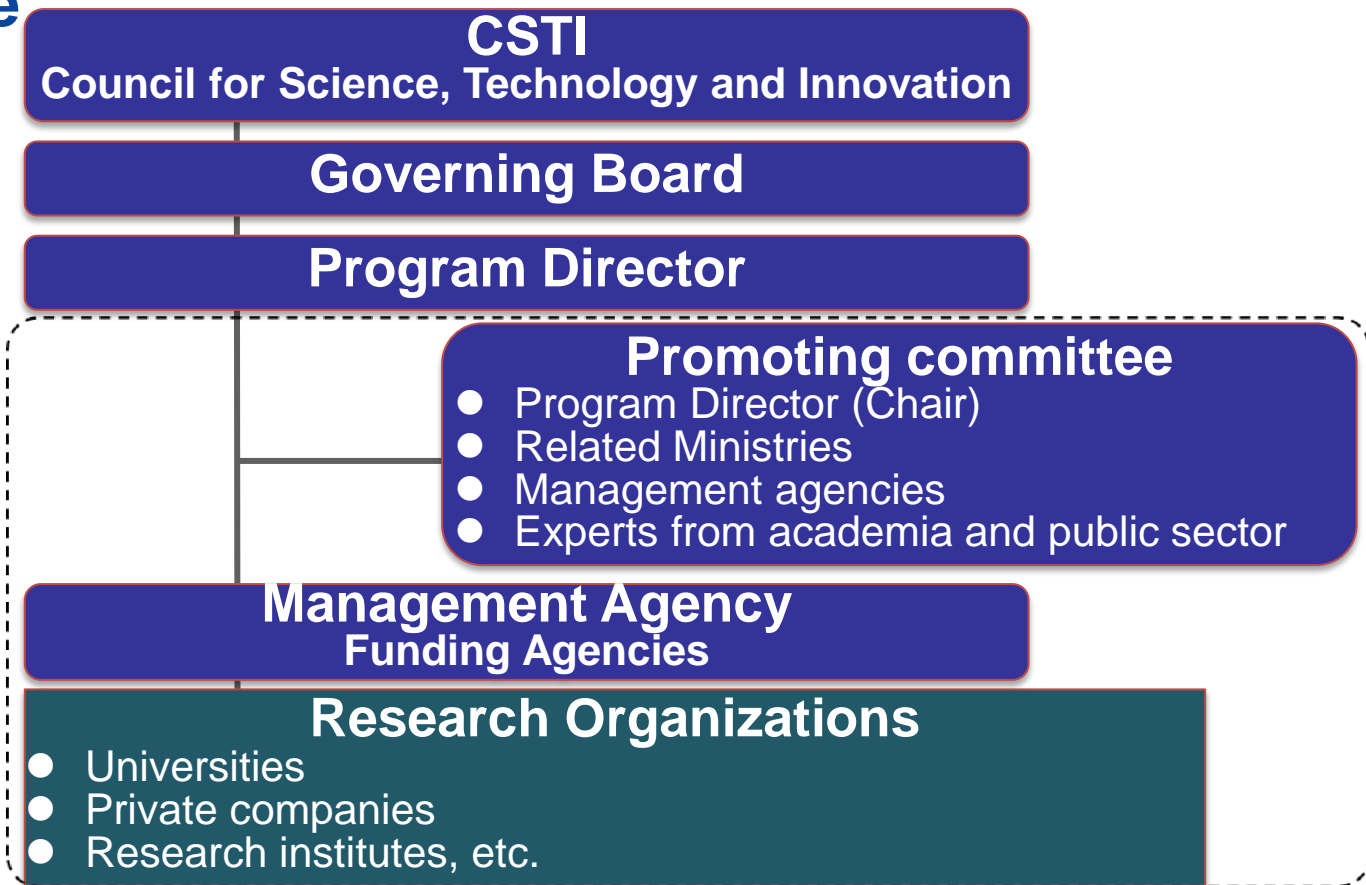
October 31, 2017



Contents

- ◆ SIP, SIP-adus
- ◆ Development Structure
- ◆ Government Structure
- ◆ Technologies for Automated Driving
- ◆ Development Focus Areas
- ◆ FOT from FY2017
- ◆ SIP-adus Workshop

◆ SIP Structure



Cross-ministerial Strategic Innovation Promotion Program

11 Programs

◆ SIP

- Cross-Ministerial **S**trategic **I**nnovation Promotion **P**rogram

“SIP- adus”

- Mobility Bringing Everyone a Smile -

- Innovation of **A**utomated **D**riving for **U**niversal **S**ervices



SIP-adus

Innovation of Automated Driving for Universal Services

◆ Three WGs under SIP-adus

Promoting Committee

Large Scale
FOT TF

System Implementation WG

- ◆ Technology development

Next Generation Urban Transportation WG

- ◆ Development and Deployment
of NGUT

International Cooperation WG

- ◆ Communication and Cooperation
- ◆ Social acceptance

Dynamic Map
Structuring TF

HMI TF

◆ Governments under SIP-adus Project

Cabinet Secretariat
IT Strategic Headquarters

Cabinet Office
Council for Science,
Technology and Innovation

**National Police
Agency
(NPA)**

Road Traffic Safety

**Ministry of Internal
Affairs and
Communications
(MIC)**

**Communication
Technology**

**Ministry of
Economy, Trade
and Industry
(METI)**

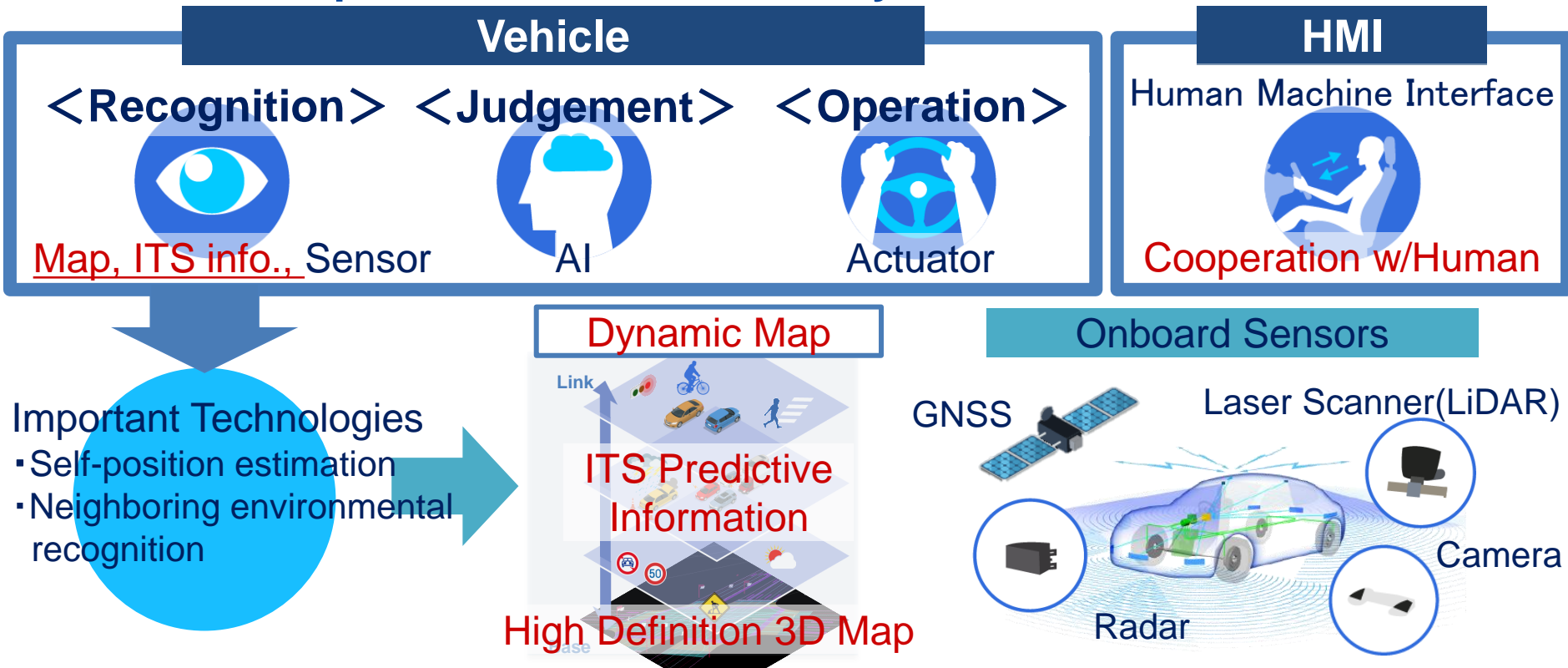
**Economy and
Industry**

**Ministry of Land,
Infrastructure,
Transportation and
Tourism
(MLIT)**

**Road Bureau
Road and
Infrastructure**

**Road
Transport Bureau
Standards**

◆ R&D in Cooperative area with Industry, Academia and Government



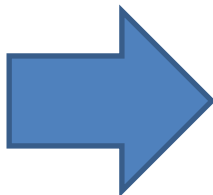
◆ 20 to 30 projects per year

Promoting Committee

System Implementation WG

Next Generation Urban Transportation WG

International Cooperation WG



■ Budget ¥100/\$

- FY 2014 : \$25 M
- FY 2015 : \$23 M
- FY 2016 : \$26 M
- FY 2017 : \$33 M

SIP-adus's Project (FY2015)	SIP-adus's Project (FY2016)
<p>Dynamic Map</p> <p>Activity Plan of Dynamic M</p> <p>Research for the advance</p> <p>Development of Vehicle-to</p>	<p>Dynamic Map</p> <p>Surveys and Investigationsfor Prototyping and Evaluation Toward Construction of a Dynamic Map PDF</p> <p>Surveying and investigation toward development of a common platform for dynamic maps PDF</p> <p>Construction of thetraffic regulation information management system for realization automated drive PDF</p>
<p>Connected Vehicle</p> <p>Research for advanced Tr</p> <p>Research for the advance</p> <p>Creation of an internatio</p> <p>Development of V2V,V2I C</p> <p>Development of Infrastruct</p> <p>Development and FOT of</p> <p>Next-Generation Intelligen</p>	<p>Investigation into the International Standardization of Dynamic Map and Overseas Trends PDF</p> <p>Survey on utilization of satellite positioning information for realization of automated driving system PDF</p> <p>Study and consideration to construct the "Dynamic Map Service Platform" PDF</p> <p>Connected Vehicle</p> <p>Establishmentof technology for providing traffic signal information towards the realization of automated driving PDF</p> <p>Establishment of technology for providing vehicle/pedestriandetection information towards the realization of automated driving PDF</p> <p>Creation of an internationally open research and development environment PDF</p> <p>Development of V2V,V2I Communication Technology Toward the Automated Driving Systems PDF</p> <p>Task II Development of Vehicle-to-pedestrian Communicatio+F1n Technology PDF</p> <p>Development of Infrastructure Radar System Technology PDF</p> <p>Next-Generation Intelligent Transport Systems (ITS) utilizing Information and Communication Technology (ICT) PDF</p>
<p>Human Factors</p> <p>Basic Research on Requir</p> <p>Research on Technical Re</p>	<p>Human Factors</p> <p>Human Factors and HMI Research for Automated Driving PDF</p>
<p>Impact Assessment</p> <p>Study on analytical metho</p> <p>order to achieve the gover</p> <p>Development and substan</p> <p>Development of Local Tra</p>	<p>Impact Assessment</p> <p>Study on analytical methodology to estimate the effect of automated driving technology on reduced number of traffic accident fatalities in order to achieve the government target PDF</p> <p>Development and substantiation of simulation technology for estimation of traffic accident reduction detailed effects. (Strategic Innovation Promotion Program:Automated driving system) PDF</p>

◆ Development to FOT

FY2014

FY2015

FY2016

FY2017

FY2018

◆ Development Structure
◆ R & D Themes

Promoting Committee

System Implementation WG

Next Generation Transport WG

International Cooperation WG

◆ Integrated into five major Topics

1. Dynamic Map



2. Cyber Security



3. HMI



4. Pedestrian Accident Reduction



5. Next Generation Transport



◆ Large Scale Field Operational Test



Enhance Research and Technology Development



Evaluate from various viewpoints



Evaluate practical use



International cooperation and harmonization



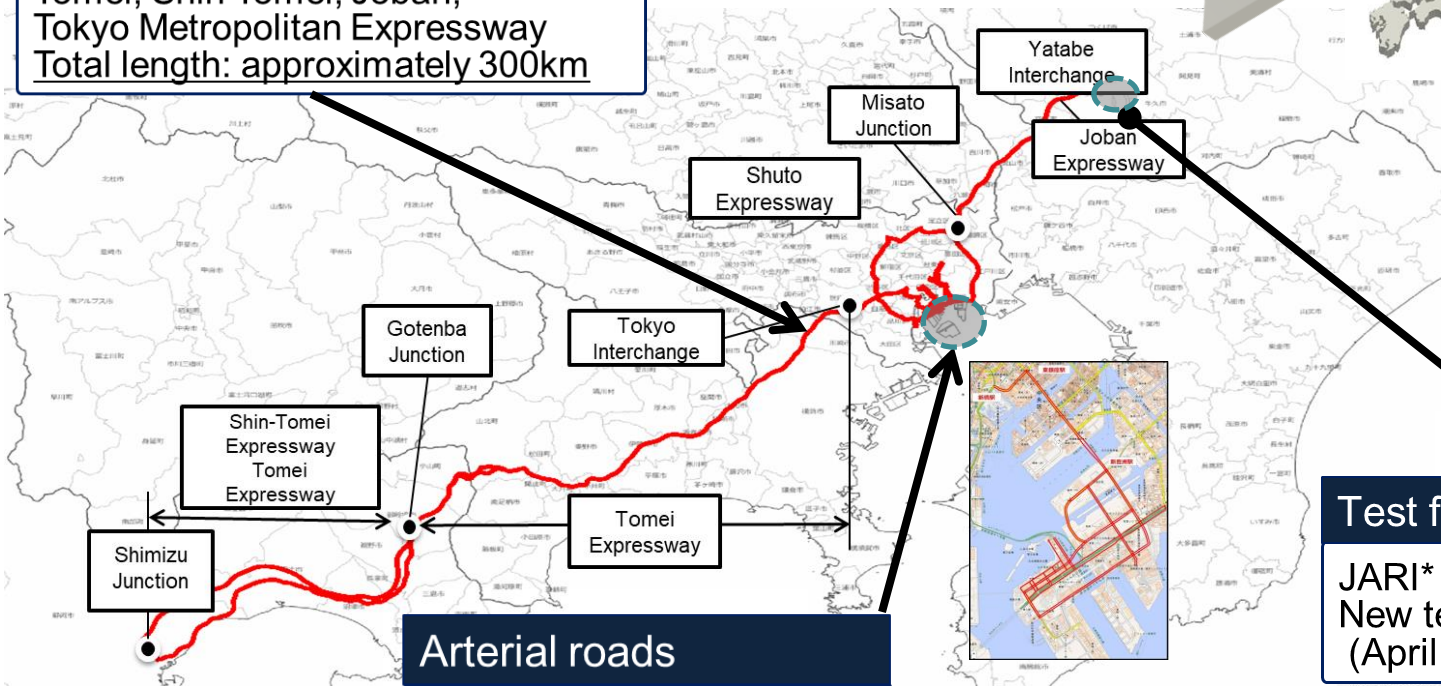
Social acceptability

Deployment

◆ Test Sites

Expressway

Tomei, Shin Tomei, Joban,
Tokyo Metropolitan Expressway
Total length: approximately 300km



Arterial roads

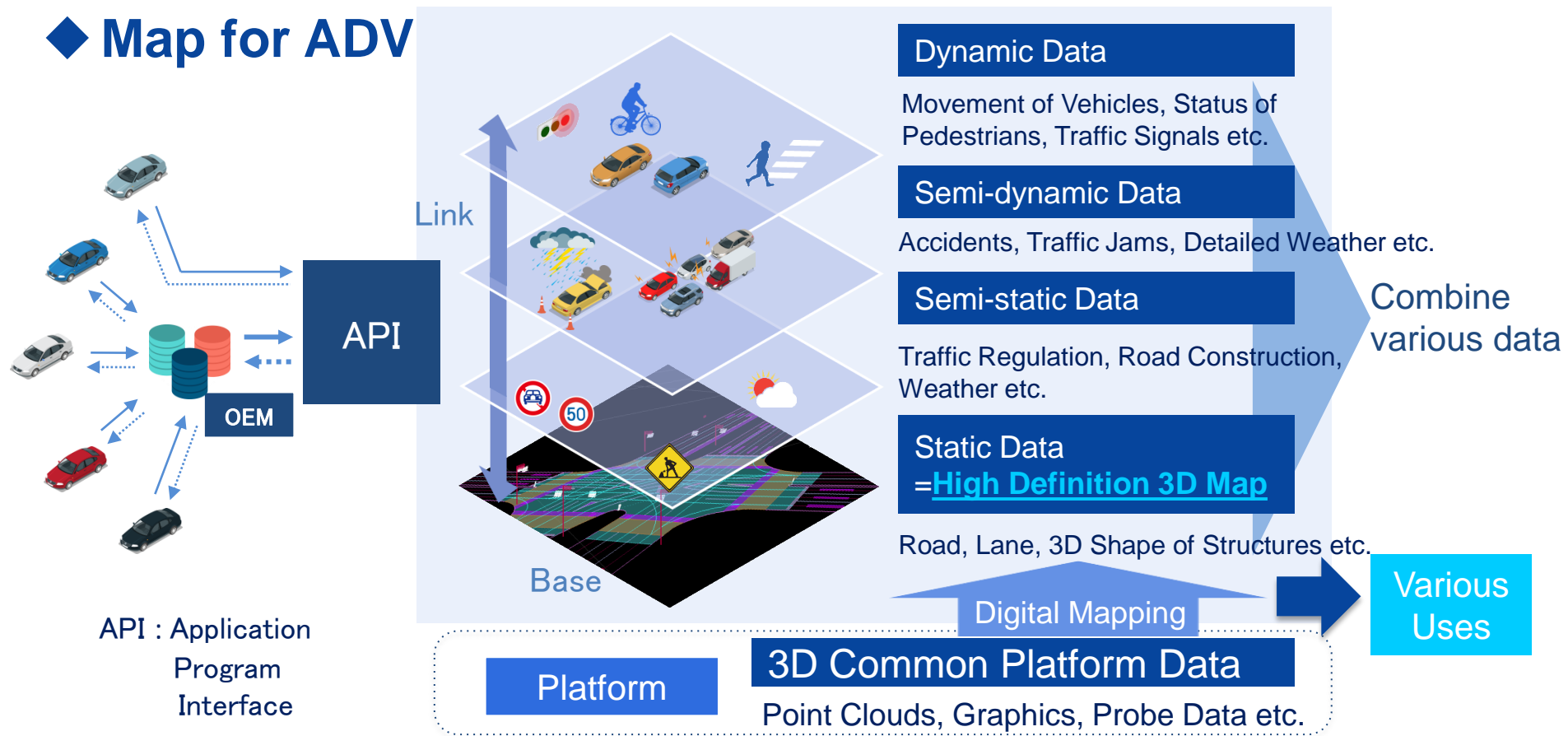
Tokyo waterfront city area



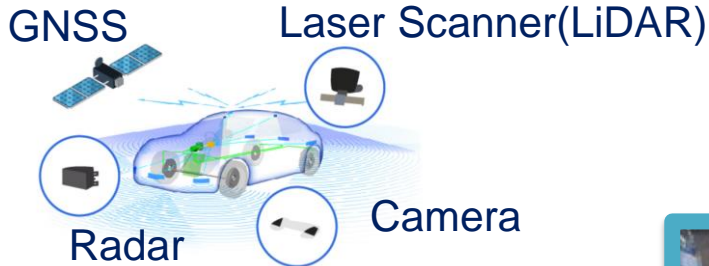
Test facility : Jtown
 JARI* Test course
 New test facility for ADS
 (April 17, 2017 open)

(*JARI : Japan Automotive Research Institute)

◆ Map for ADV



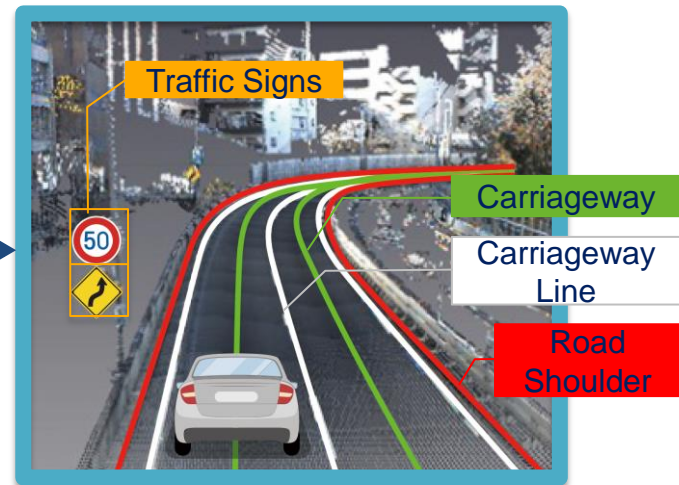
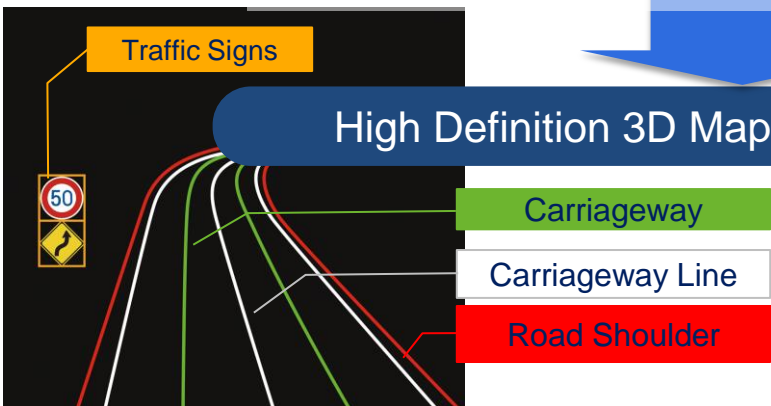
Vehicle Position Detection



Sensed Data

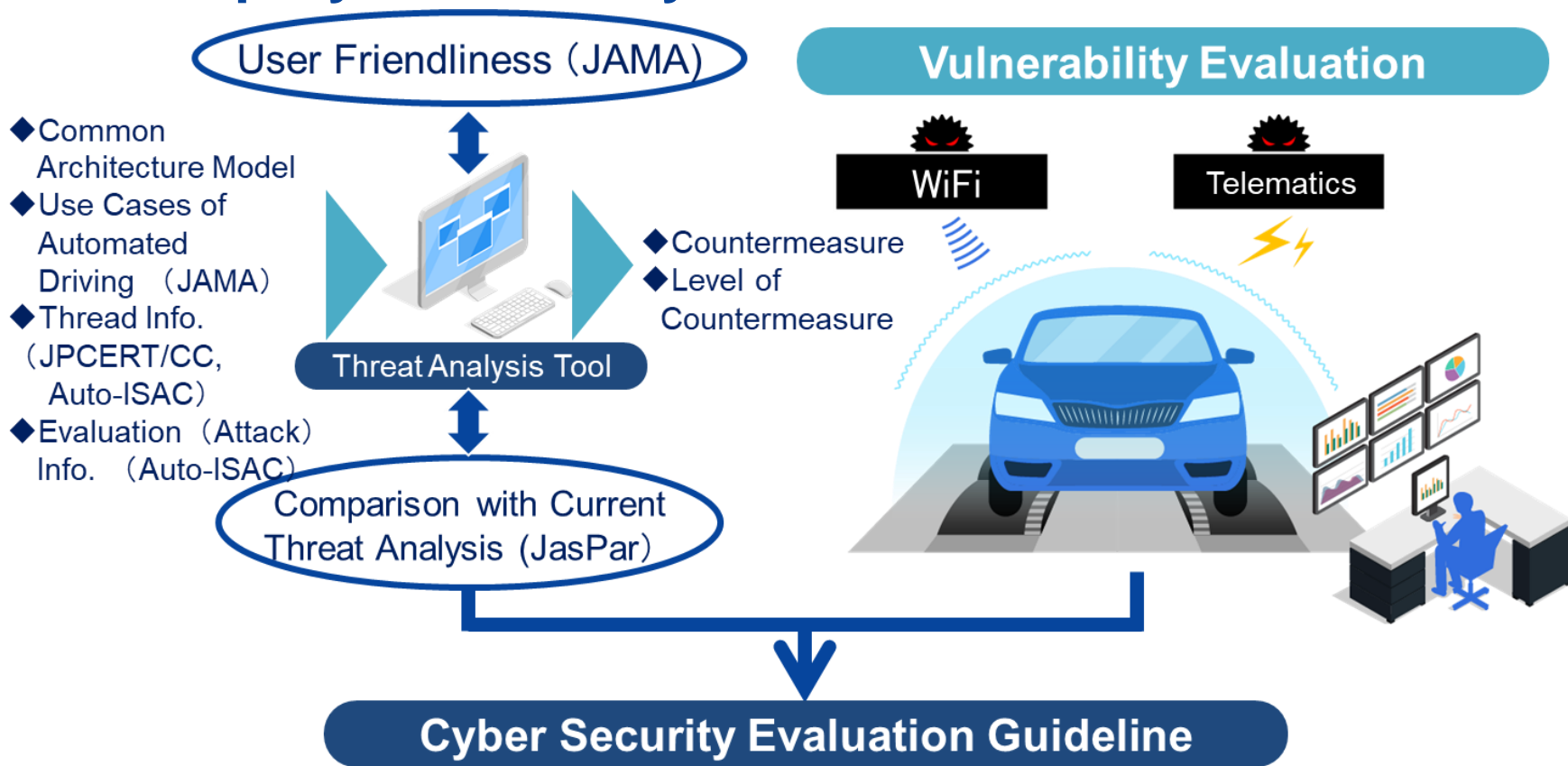
Compare to estimate the position

High Definition 3D Map

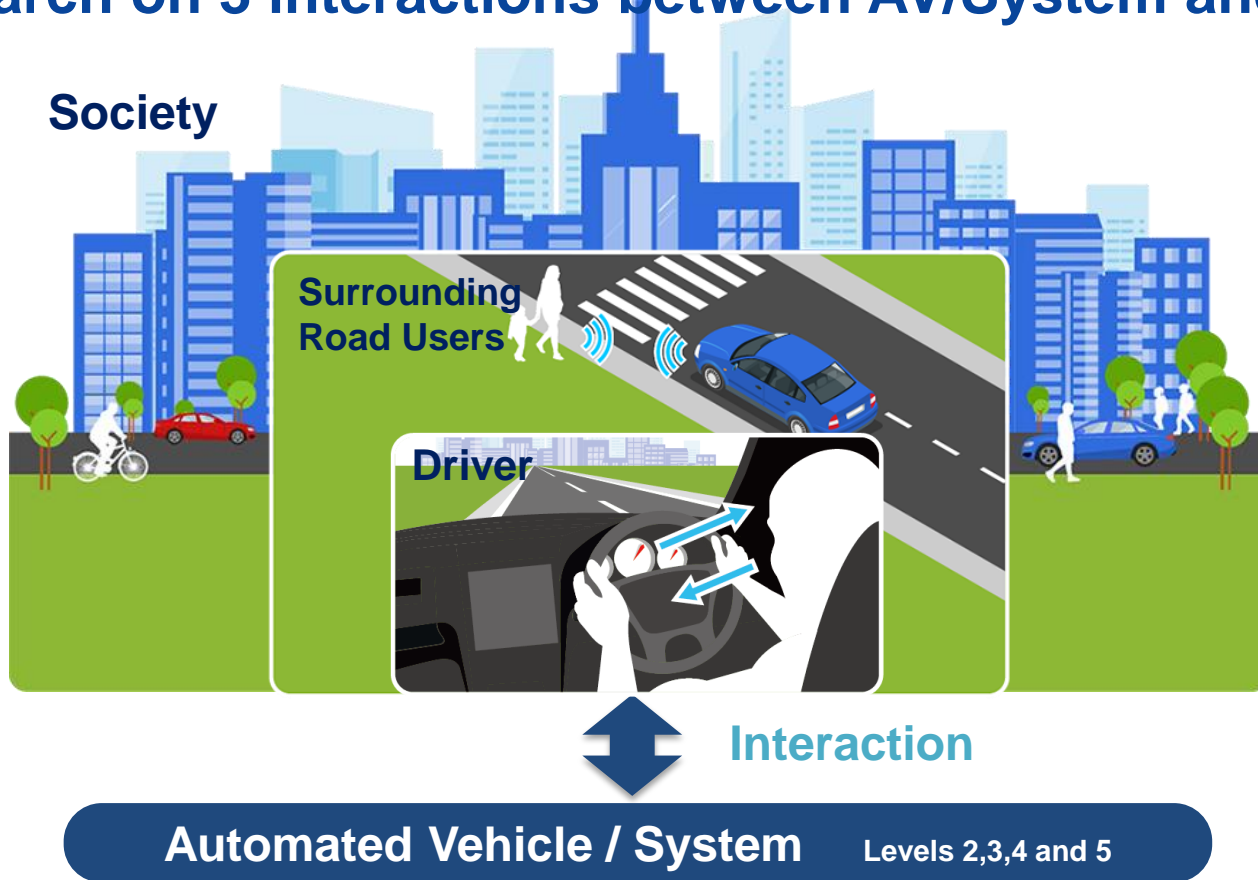


Estimate the position of the vehicle

◆ Develop Cyber Security Evaluation Guideline

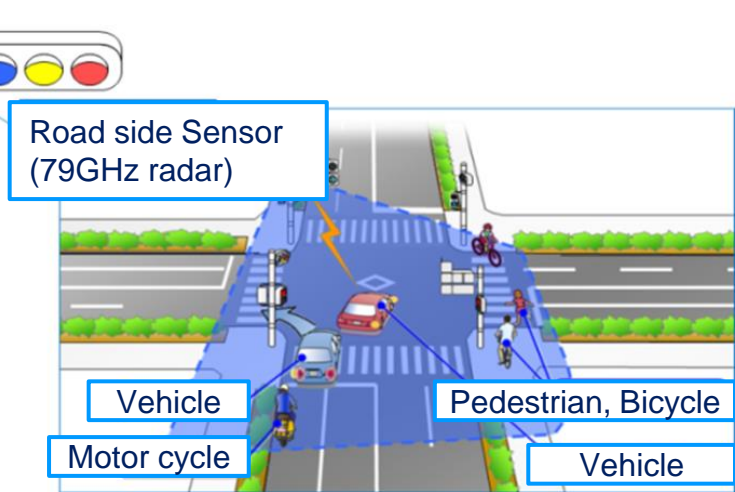


◆ Research on 3 interactions between AV/System and Human



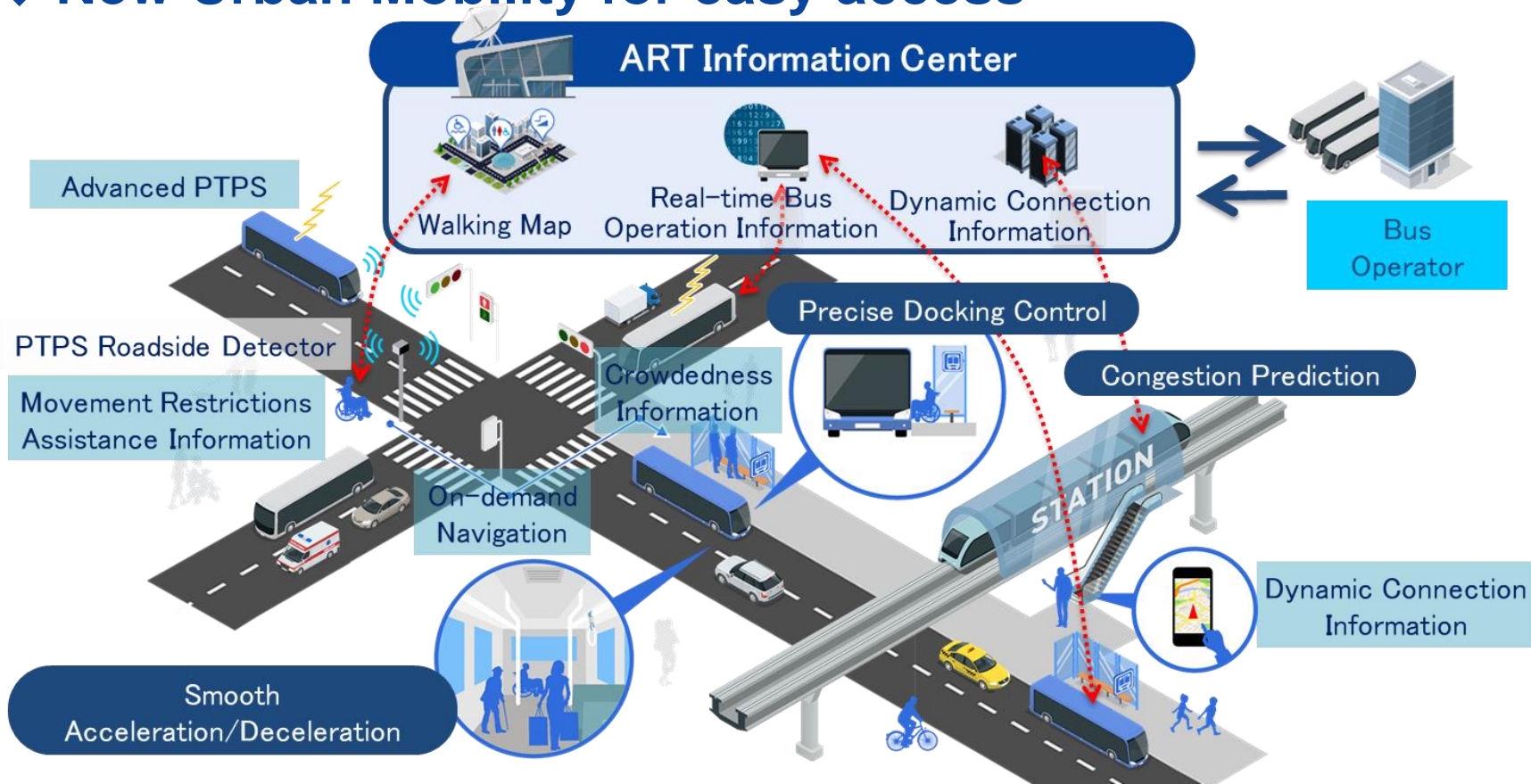
◆ Mitigate Pedestrian Accidents using ITS Technologies

V2P with mobile device

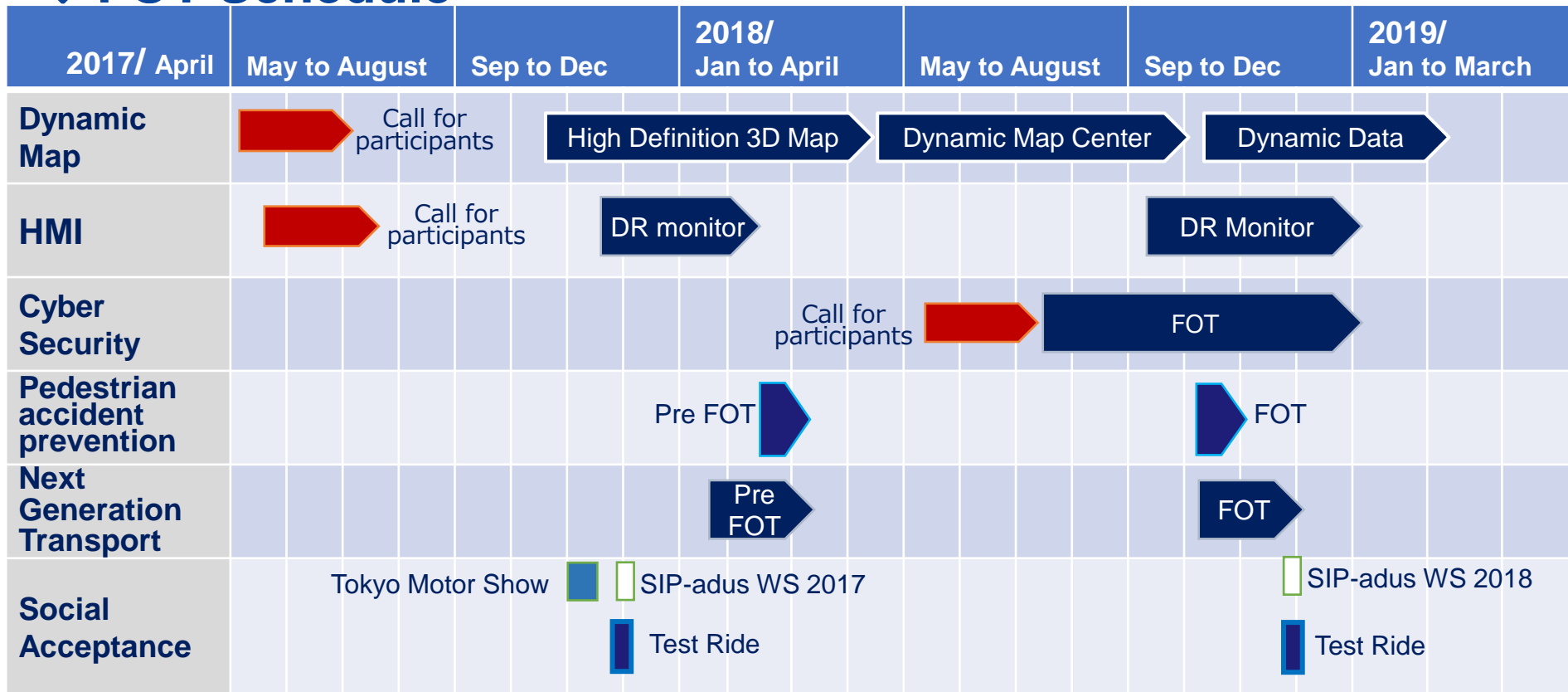


79GHz radar

◆ New Urban Mobility for easy access

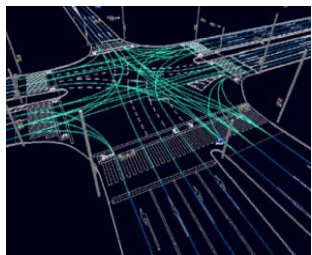


◆ FOT Schedule



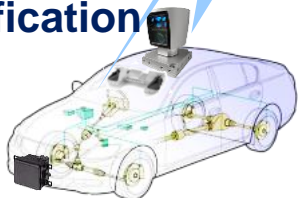
◆ Dynamic Map Evaluation

- Validate 3D high-resolution digital map data
- Validate data collection and distribution method
- Verify the utility of semi dynamic information



- Map data Specification
- Accuracy

GNSS



Lidar

Camera

Millimeter wave Radar

Data Update
Distribution



Utility of semi
dynamic information

Traffic control
Congestion
Construction
Dropping etc.

Dynamic Map Center

- Public Information
- Semi dynamic Information to Dynamic map via I2V

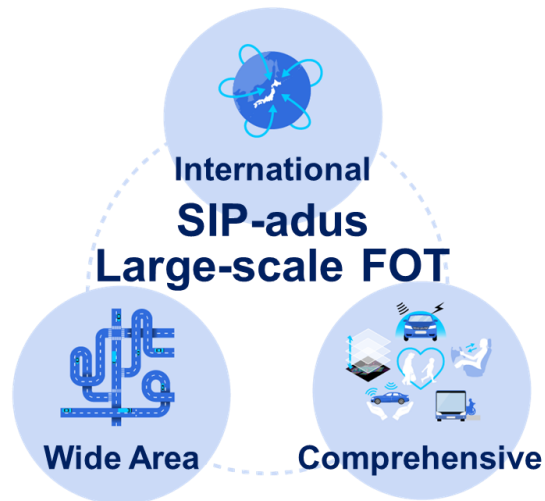
◆ Dynamic Map Evaluation



SIP-adus Dynamic Map



Prepare own test vehicles



Participants



◆ Workshop on Connected and Automated Driving System



<http://www.sip-adus.jp/evt/workshop2017/>

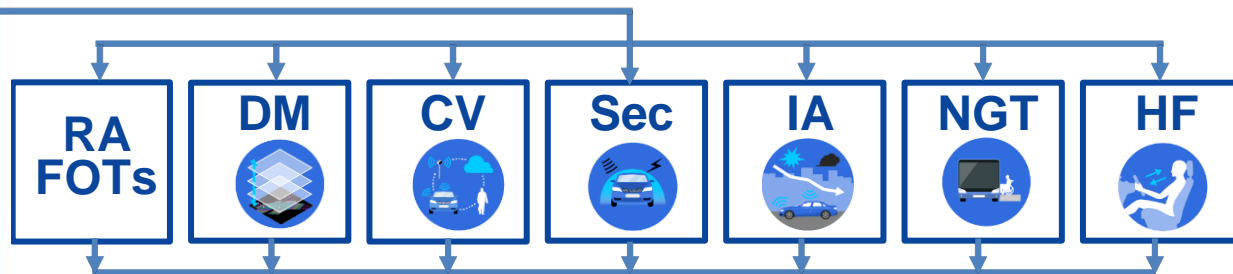
◆ Plenary Sessions and Workshop

	Tuesday November 14	Wednesday November 15	Thursday November 16 (Breakout Workshop)
AM	9:00 ~ 10:00 Opening Session	9:00 ~ 10:30 SIP-adus Report Session	9:00 ~ 12:00 Breakout Workshop
	10:00 ~ 12:40 Regional Activities and FOTs	10:45 ~ 12:30 Impact Assessment	
	Poster Session		
PM	13:40 ~ 14:50 Dynamic Map	13:30 ~ 15:15 Next Generation Transport	13:00 ~ 15:00 Breakout Workshop
	15:00 ~ 16:40 Connected Vehicles		
	16:55 ~ 18:45 Security	15:30 ~ 18:00 Human Factors	15:30 ~ 17:15 Breakout Workshop Summary
	Preparatory Meeting for Breakout Workshop		17:15 ~ 17:45 Closing Session

◆ Breakout Workshop

Thursday November 16 (Breakout Workshop)	
AM	9:00 ~ 12:00 Breakout Workshop
PM	13:00 ~ 15:00 Breakout Workshop
	15:30 ~ 17:15 Breakout Workshop Summary
	17:15 ~ 17:45 Closing Session

Seven Breakout Workshops simultaneously



All Breakout Workshop attendees



Breakout Workshop Summary

◆ Opening Session

◆ Regional Activities and FOTs

 Dynamic Map

 Connected Vehicles

 Security

◆ SIP-adus Report Session

 Impact Assessment

 Next Generation Transport

 Human Factors



◆ Regional Activities and FOTs

- Status of each region
- FOT in each region
- Issues of FOTs
- International Cooperation to enhance deployment
- Guidance, Guidelines, Policies, Regulations, Harmonization, Standard, Ethics, etc.



Moderator



Sweden



VW/Pegasus/Germany



Roadworthiness/Spain



Renault/France



Aurora/Finland



Australia



Platooning/Netherlands



Tokyo 2020



**Thank you
See you in Tokyo**

