

# **3rd. Asia Automobile Institute Summit**

**2-4 December 2014, Bangkok**

## **Introduction of JARI**

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**Global Networking**

**Japan Automobile Research Institute**

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# JARI's History and Location

**Apr. 1969: Japan Automobile Research Institute (JARI) established**

**Oct. 2005: Shirosato Test Center completed and entered service**



**Kanto Region, Japan**



**Shirosato Test Center**



**Tsukuba Research Facility**



# Tsukuba Research Facility

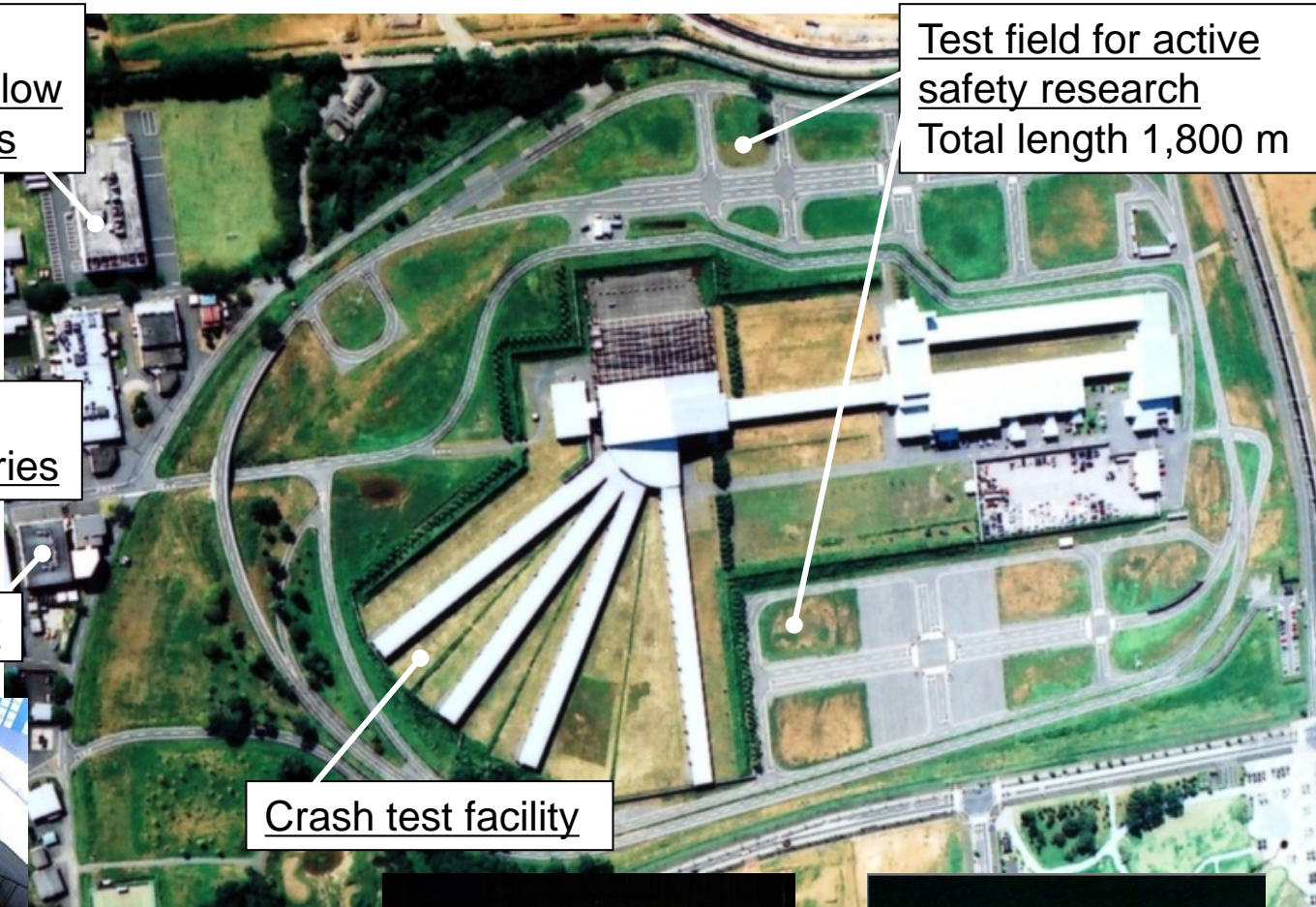
Laboratory for  
heavy-duty ultra-low  
emission vehicles

Laboratories for  
EV, FC and Batteries

Driving simulator

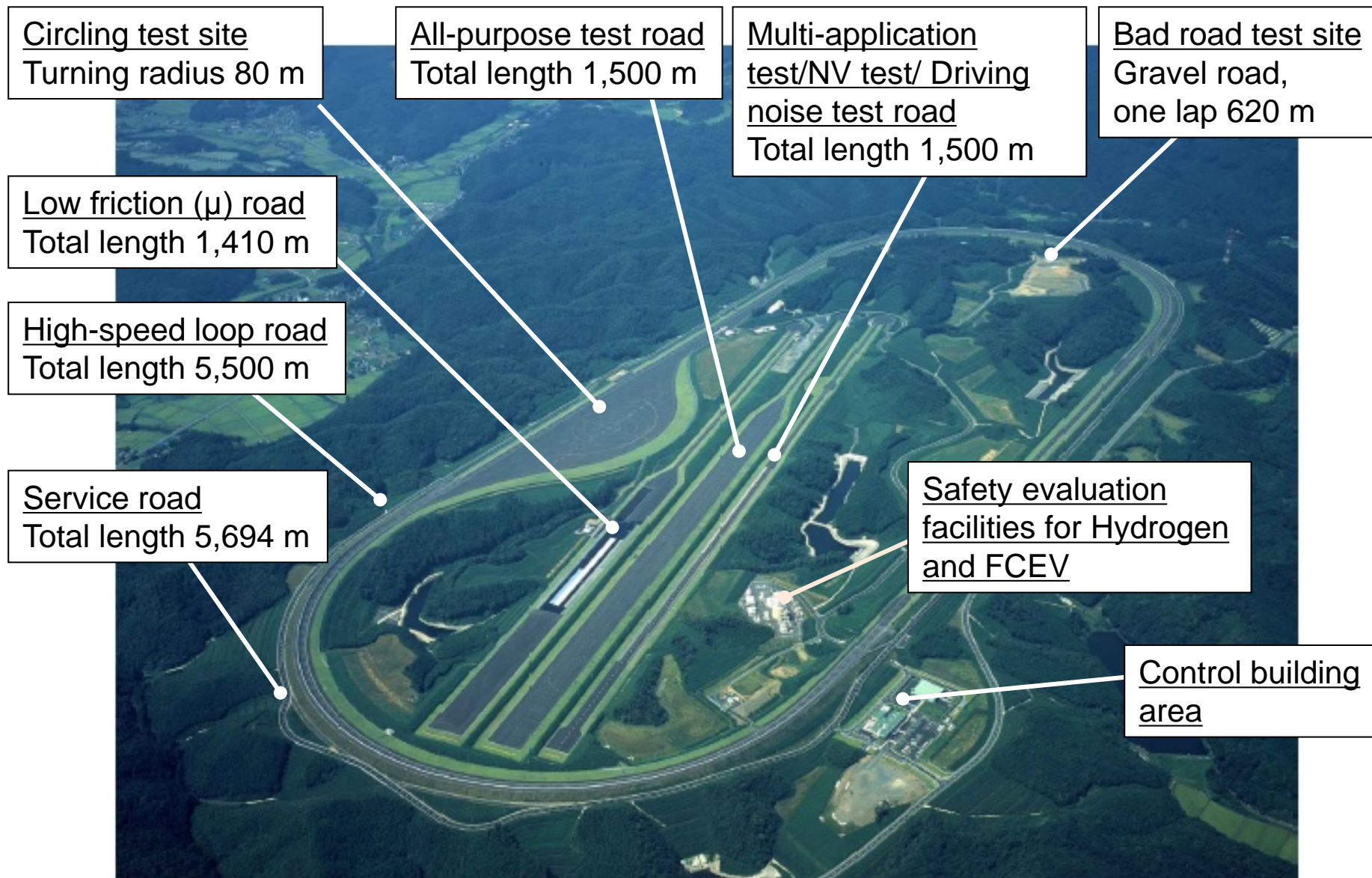
Crash test facility

Test field for active  
safety research  
Total length 1,800 m





# Shirosato Test Center



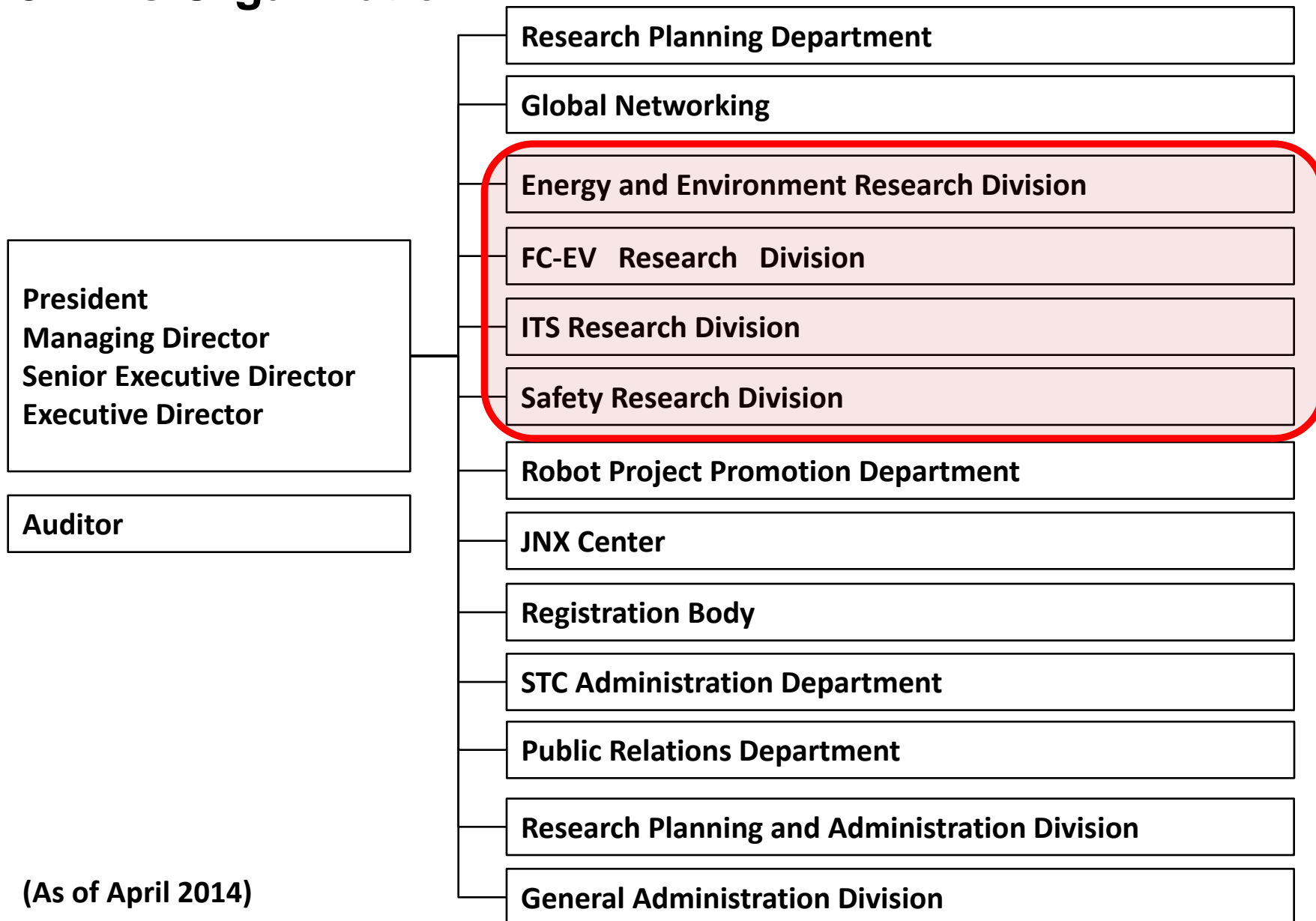
Total area: 302 ha

# JARI's Outline

- ✓ **JARI vision in 2020**  
**JARI will challenge advanced research, and contribute to motorized society in the world.**
- ✓ **Number of personnel: 357** (As of April 1, 2014)
  - 149 Researchers, including 48 PhD
- ✓ **Business scale in 2013**
  - Income: **USD 68 million** (JPY 6.8 billion, USD in JPY=100)
  - Number of test & research projects: **427 in total**
    - Public projects: 57,
    - JAMA\* projects + Private projects: 333
    - Independent research projects: 37

\*Japan Automobile Manufacturers Association
- ✓ **Publications and presentations in 2013**
  - Domestic: **104** and International: **21**

# JARI's Organization



(As of April 2014)

# JARI's Role and Responsibility

## Contribution to policy making

### Government

#### METI

- ✓Industrial promotion policy
- ✓Energy saving policy
- ✓Standardization policy

#### MLIT

- ✓Road traffic policy
- ✓Technical regulations
- ✓International harmonization

#### MOE

- ✓Environmental policy
- ✓Regulations

#### Police Agency

- ✓Training of investigation of traffic accidents

## Role to connect government and industry

### JARI

### Academy

Universities

Research institutes

## Assessment tests of new products/ technologies for common issues in the industry

### Industry

Automobile

Electricity/  
Electric power

Internet & Tele-communications

**JARI has a unique neutral position between the government and industry.**

<Note>

METI: Ministry of Economy, Trade and Industry

MLIT: Ministry of Land, Infrastructure, Transport and Tourism

MOE: Ministry of the Environment



# JARI's Activities with Asian Countries



**Asia Automobile Institute Summit**



**Round table**



**Seminar in Indonesia**

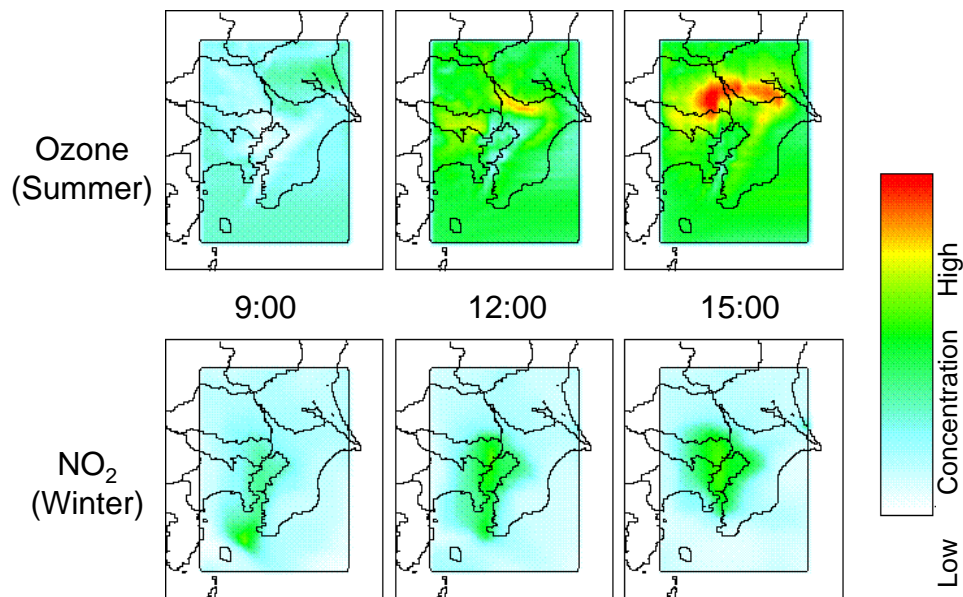


**JICA Group Training**

# Research and Testing Activities - 1/5

## Environment and Energy

- New fuels
- Hazardous air pollutants
- Health effects
- Air quality / Environmental simulations
- Advanced power train systems
- Ultra-fine particles
- Road traffic noise



**Exhaust gas emission test**

**Simulated distributions of regional ozone (O<sub>3</sub>) and nitrogen dioxide (NO<sub>2</sub>)**

## Research and Testing Activities - 2/5

### Hydrogen & Fuel Cells / Fuel Cell Vehicles, Hybrid Electric Vehicles, Battery Electric Vehicles

- Performance & safety evaluation
- Standardization
- Highly efficient batteries



**Hydrogen and Fuel Cell Vehicle Safety  
Evaluation Test Facility (Hy-SEF)**



**JARI standard cell**



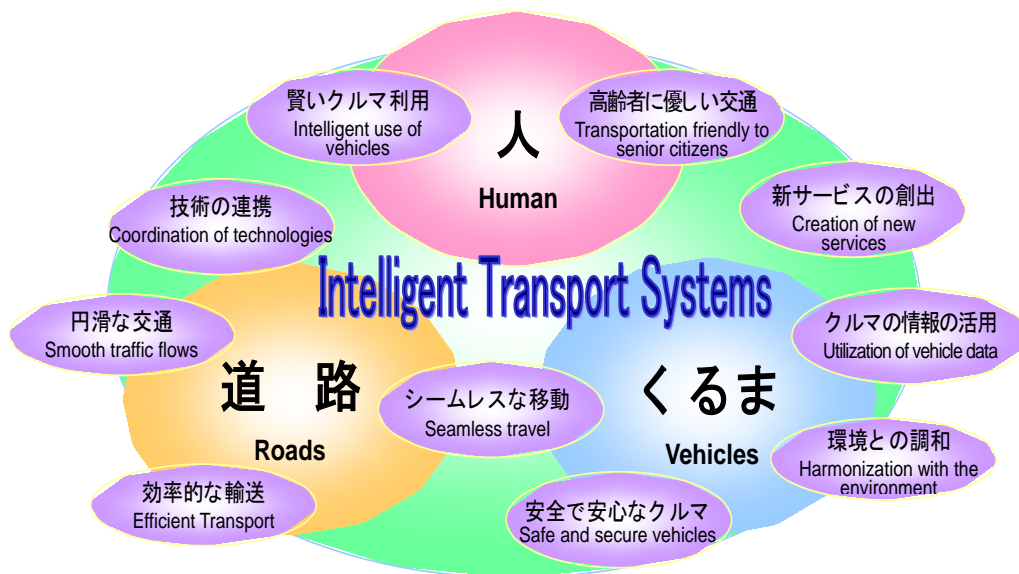
**Vehicle fire testing**



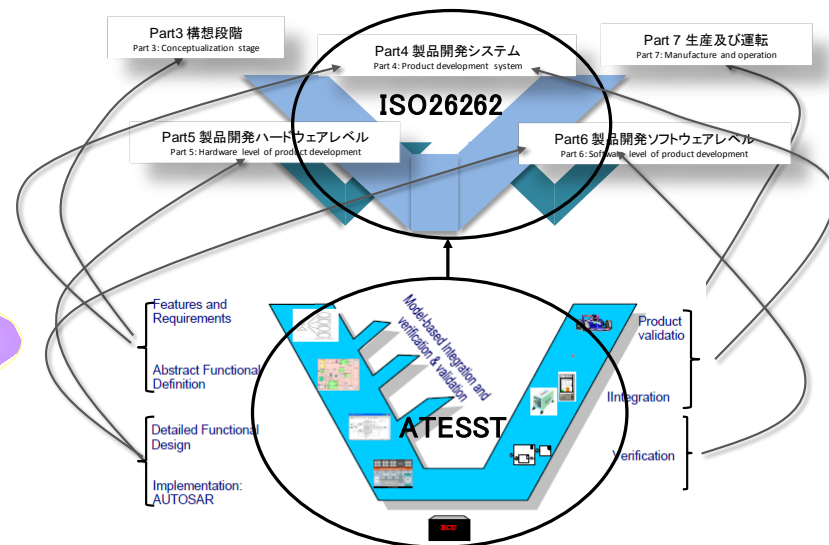
# Research and Testing Activities - 3/5

## ITS: Intelligent Transport Systems

- Energy ITS
- Smart vehicle network
- Probe-car information system
- Base strengthening of electronic technology
- Standardization
- ISO26262



Areas of ITS research at JARI



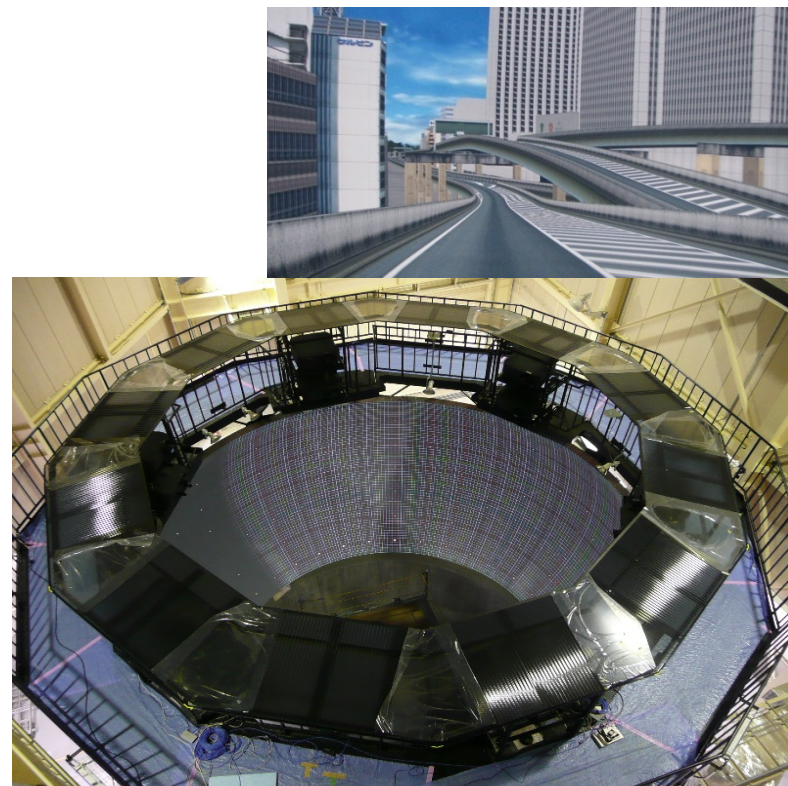
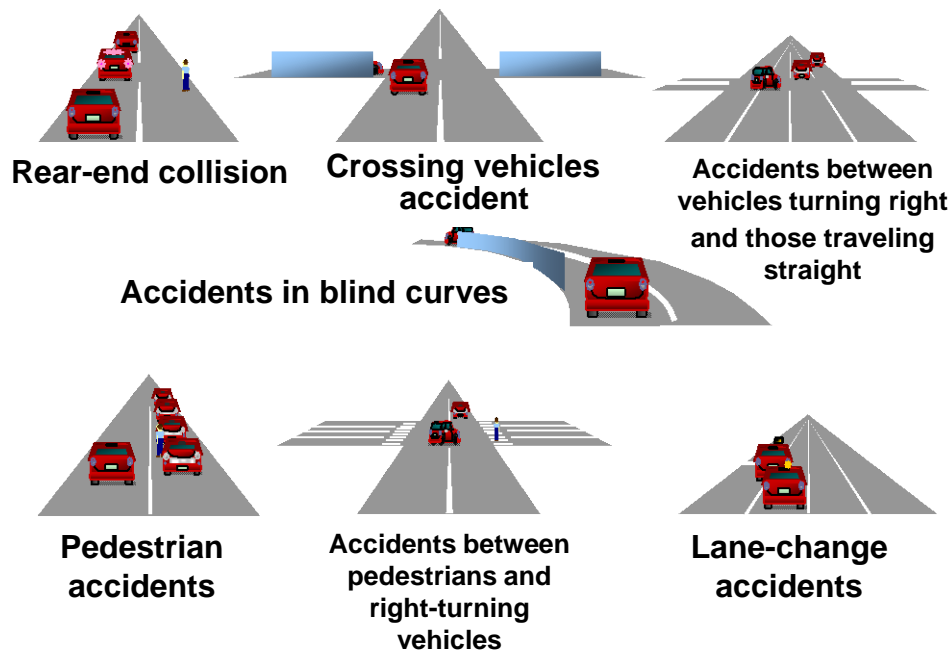
Development scenario for ISO 26262-compliant electronic systems



# Research and Testing Activities - 4/5

## Active safety

- Driver support system
- Elderly drivers
- Vehicle dynamics
- Human machine interface
- Lighting / Visibility



Driving simulator

# Research and Testing Activities - 5/5

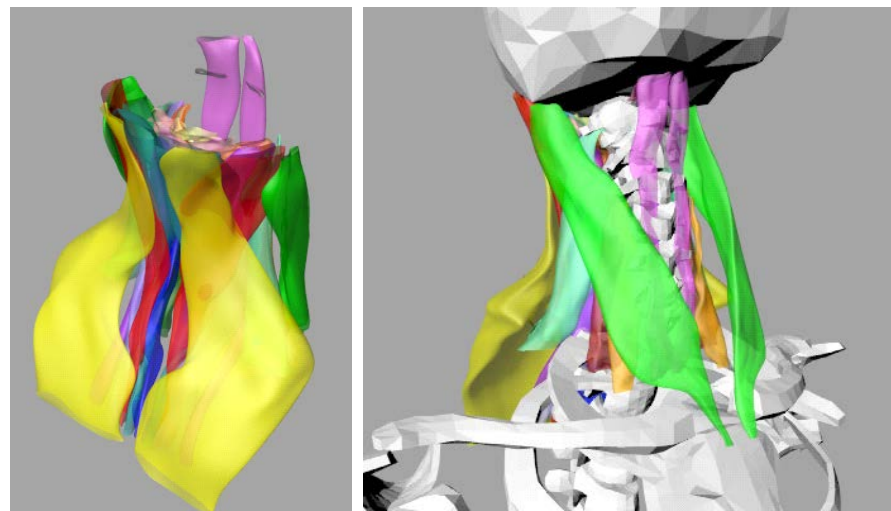
## Crash safety

- Occupant protection
- Impact biomechanics
- Pedestrian protection
- Traffic accident analysis



### Collision Test

Upper: Frontal crash,  
Lower: Side impact crash



### Cervical muscle model for human neck

## Activities start from 2014

### AICE: The research association of Automobile Internal Combustion Engines

- ✓ Established on 1. Apr. 2014
- ✓ Members:
  - 8 Japanese car companies** such as Suzuki, Daihatsu, Toyota, Nissan, Subaru, Honda, Mazda and Mitsubishi
  - 2 Japanese institutes** such as **JARI** and AIST (National Institute of Advanced Industrial Science and Technology)

### SIP for ADS: Automated Driving Systems

- ✓ A new cross-ministry SIP: Strategic Innovation Promotion program in JFY2014 was **launched by the Japanese government**.
- ✓ **"Automated driving system for dodging accidents and minimizing traffic congestion"** was selected.

# Summary

JARI has been performing **neutral and public-benefit activities for 45 years.**

- ✓ **3 bases:** an office in Tokyo, a research facility in Tsukuba and a test center in Shirosato.
- ✓ **149 researchers** among the 357 staff members.  
48 members have doctorate degrees, as of Apr. 2014.
- ✓ **68 million US dollar revenue** with 427 tests and research programs in 2013.
- ✓ **4 key research divisions:** "Energy and Environment", "FC-EV", "Safety" and "ITS".



# **Thank you for your attention.**

**If you have any comments and questions,  
please feel free to contact Mr. Mitsuo Yonezawa.**

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