



# **Autonomous Bus Project**

**Safer and more convenient transportation services using  
network and AI technologies**

# Smart Mobility Promotion Consortium

Autonomous bus service will be launched on Ito Campus, Kyushu University (2nd half of FY2018)








Press release: 8 July 2016

# Objectives/Outline of Verification Test

Verification Test started from January 2017

Press release: 13 December 2016

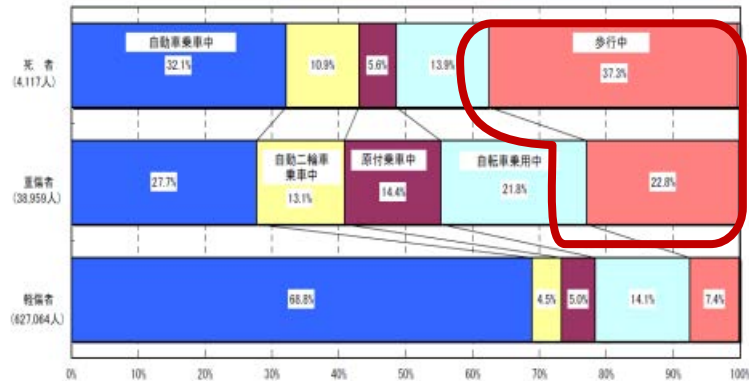
<p>Challenges before enabling service</p>	<p><b>Improve safety</b></p> <p>Safety in vehicular technologies      Safety in peripheral technologies</p>		<p><b>Improve convenience</b></p>	<p><b>Increase public acceptance</b></p>
<p>Outline of development and verification</p>	<p><b>Phased driving tests</b></p>  	<p><b>P2X</b></p> 	<p><b>Operation control</b></p>  <p><b>Voice agent</b></p> 	<p><b>Evaluate public acceptance of comfort and convenience</b></p>

# P2X (Pedestrian to Everything)

## High ratio of critical accidents when walking

Excerpt from National Police Agency document

### FY2015 Traffic accidents



## Focused on installation of safety mechanism such as ADAS and V2X on vehicles



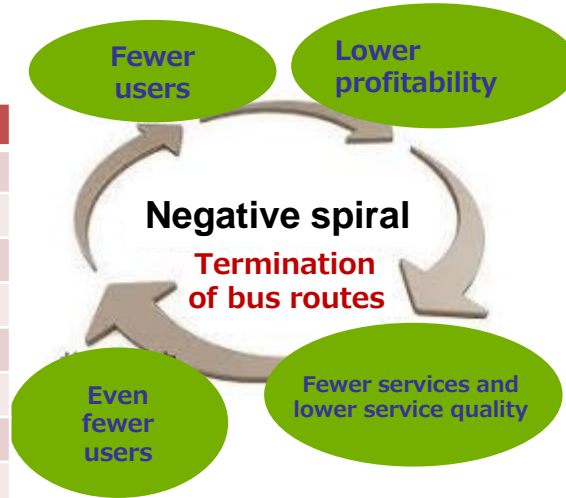
- Develop safety devices that alert pedestrians about danger, or drivers about pedestrians
- Propose new P2X (Pedestrian to Everything) concept, commence market deployment and promote standard specifications

# Predictive On-Demand Service (Operation Control)

## Bus routes decrease, unserved areas increase

Terminated bus routes  
(Excerpts from Ministry of Land  
and Transportation document) in km

	Terminated routes(in km)
FY2007	1,832
FY2008	1,911
FY2009	1,856
FY2010	1,720
FY2011	842
FY2012	902
FY2013	1,143
Total	10,206



- More local governments are introducing on-demand bus services
- On-demand buses still have efficiency and convenience issues

### Issue 1

Bus allocation data are compiled manually by operators.

### Issue 2

Users must reserve a bus each time.

- ◆ Goal is to realize Predictive On-Demand Bus service that predicts demand to allocate buses without reservation and operate them on optimal routes

# Verification Test Flow

Improve public acceptance and verify safety of autonomous buses

Further verification of safety/convenience

STEP 1

Standalone driving on closed road

Scheduled to start from January 2017

STEP 2

Simulated traffic environment on closed road

STEP 3

Real environment in light traffic

STEP 4

Real environment in heavy traffic

STEP 5

Transport university staffers and students

## Technical proof

- Road-to-vehicle cooperation
- Voice agent
- Operation control



<sup>NTT</sup>  
docomo