

Automated Transit Bus Market Assessment Briefing

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Volpe Center

Advancing transportation innovation for the public good

Project Overview

Purpose – Provide information on commercially available technologies and commercialization timelines for near-market technologies.

Audience – FTA and transit agency staff, as well as other communities interested in procuring and testing vehicles (e.g., cities and state DOTs).

Scope – Range of automation technologies (SAE Level 0-5 automation systems) and bus types (40', 60-80', paratransit, shuttles).

Methods – Information collected from publicly available documentation (e.g., news articles and industry websites) and phone calls with bus manufacturers, suppliers, and new entrants.

Stakeholder Engagement

Bus Manufacturers	Suppliers	New Entrants
<ul style="list-style-type: none">• Gillig Corporation• New Flyer• Proterra• Volvo (Nova Bus)	<ul style="list-style-type: none">• Bendix• Continental• DCS Technologies• Mobileye• ZF / TRW	<ul style="list-style-type: none">• 2getthere• Aptiv / nuTonomy• EasyMile• Local Motors• May Mobility• Navya

Vehicle Types

- Transit Buses
 - Driver assistance features
 - Automated features
- Automated Shuttles
 - Several providers
 - Many pilot tests
 - Commercial products or prototypes?



Photo Credit: Volpe

Key Findings

- Perception-Reality Disconnect
- Pricing
- Applicability Limitations
- Volume/Scale Constraints
- Industry Activities
- Research Issues
- Importance of Demonstrations

Key Findings: Perception-Reality Disconnect

- Optimistic media coverage
- Few features available
- Shuttles becoming more available
- Systems in the pilot testing stage
- Years before broader deployment



Key Findings: Pricing

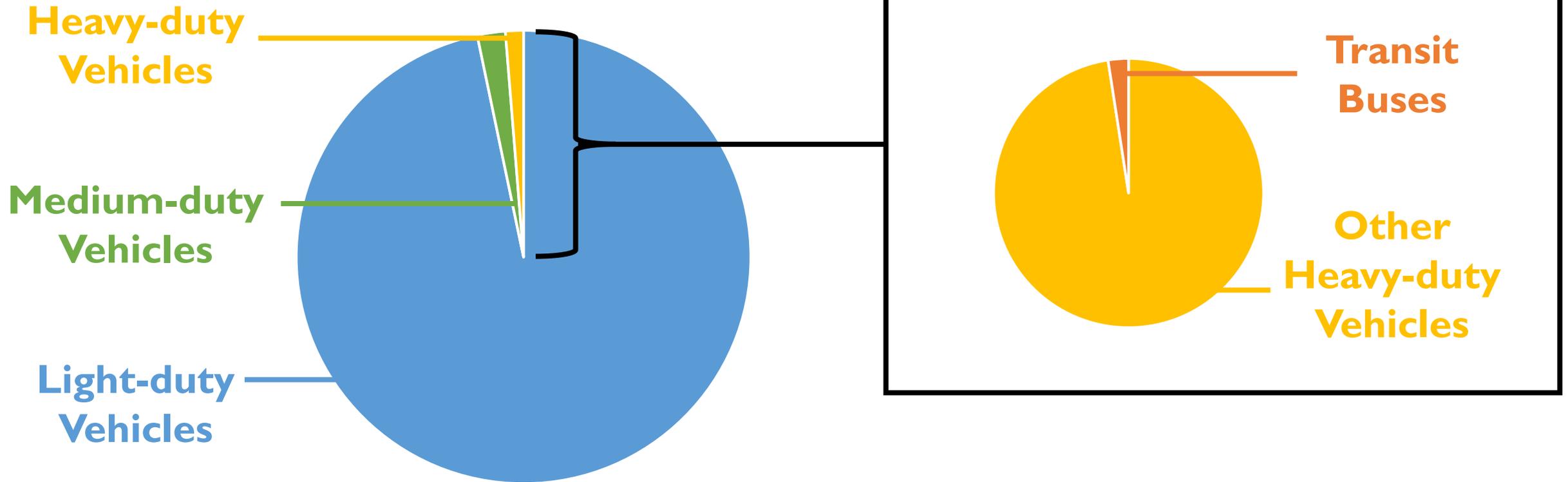
- Technology costs unknown
- Prototypes are typically not priced
- Frequent changes in price



Key Findings: Applicability Limitations

- Current automation systems for highways may not apply
 - Buses drive at lower speeds
 - Buses drive in a variety of environments (e.g., urban, suburban, and rural roads)
- False positives are a barrier to adoption
 - System may incorrectly activate
 - Such activations may make driving more difficult or dangerous

Key Findings: Volume/Scale Constraints



Key Findings: Industry Activities

- Technology Roadmaps
 - High-level
 - Internal
 - Uncertain
- Supplier Outreach
 - Share planning information
 - Conversations ongoing
 - Potential collaborations



Key Findings: Research Issues

- Uncertainty regarding issues, including:
 - Pedestrian behavior
 - Occupant behavior
 - Operator acceptance
 - Insurance and liability
 - Communication and education
- Research and outreach activities may be needed

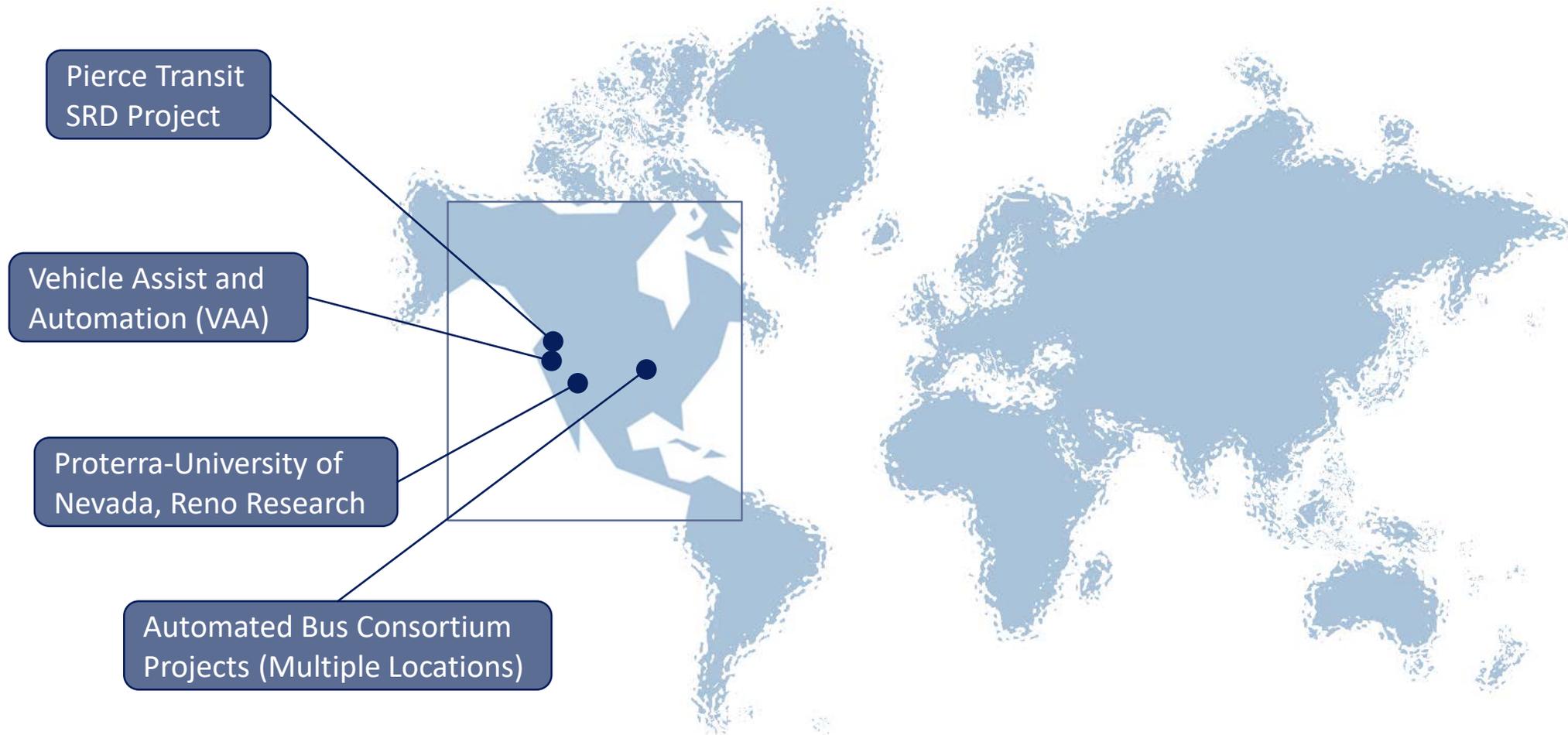


Photo Credit: Volpe

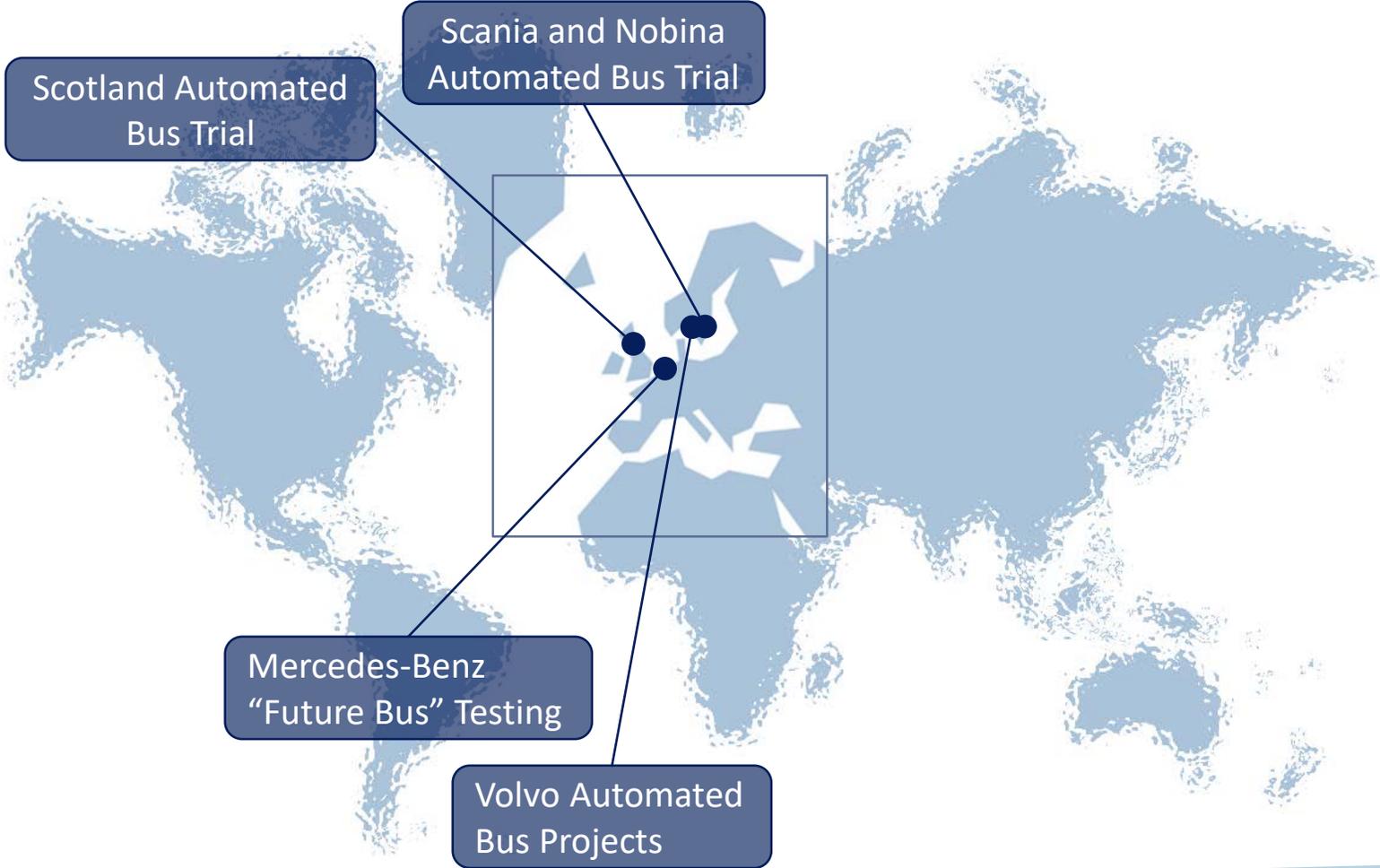
Key Findings: Importance of Demonstrations

- Demonstration and pilot programs are essential to making technological progress and answering questions on the feasibility of automation systems for transit buses.
- High cost of pilots and demonstrations can be prohibitive.
- Federal grants and programs can help enable research, demonstration, and implementation.

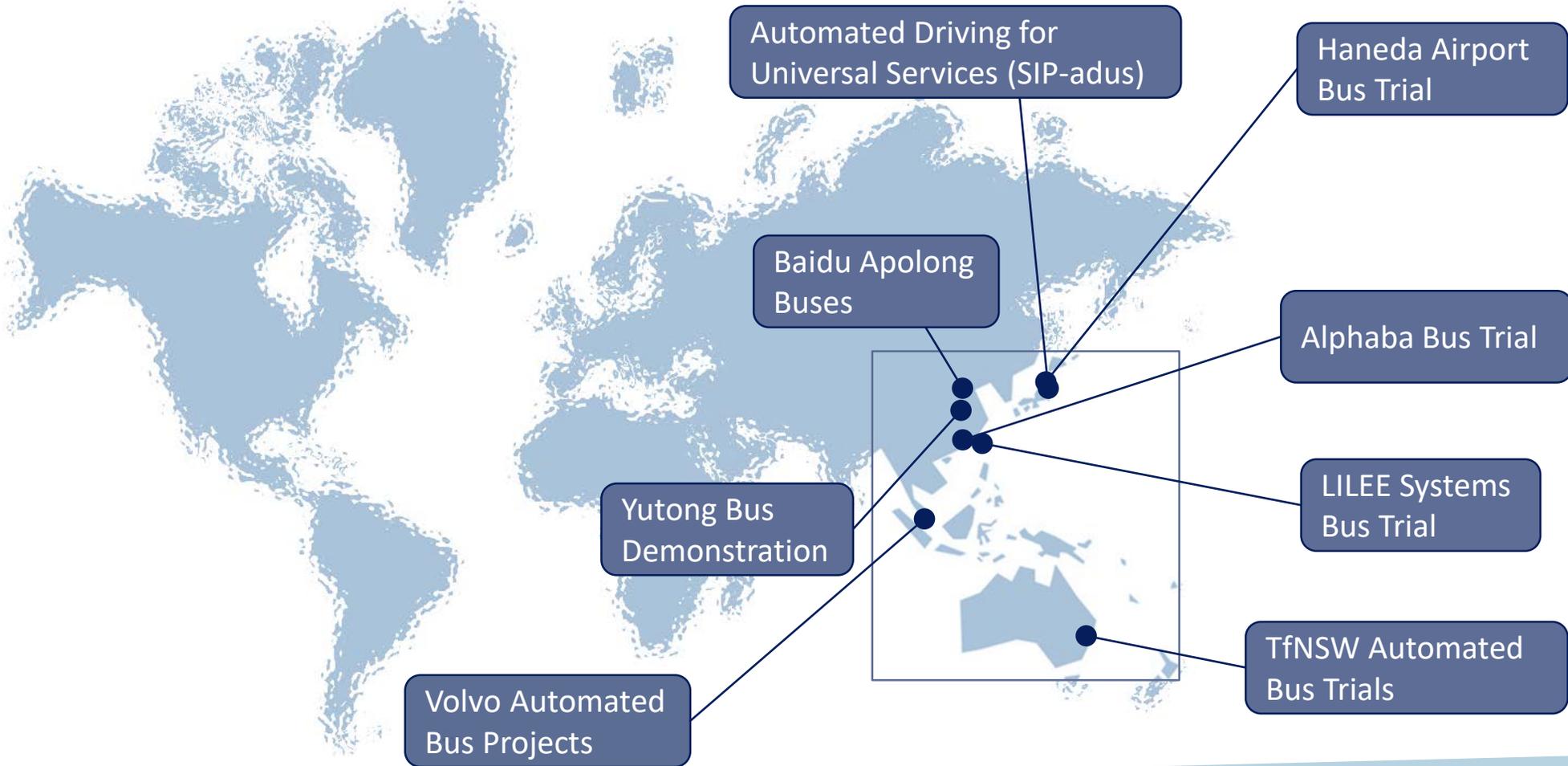
International Testing Activities



International Testing Activities



International Testing Activities



Market Assessment Report

- The final report is available online:
<https://www.transit.dot.gov/research-innovation/transit-bus-automation-market-assessment-report-0144>
- A report summary is also available:
<https://www.transit.dot.gov/research-innovation/summary-transit-bus-automation-market-assessment-report-0144>



For More Information

transit.dot.gov/automation-research

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