



Integrated Universal Mobility

**APTA Bus and Paratransit
May 8, 2018**



TODAY'S WISDOM
A trip of a thousand steps
fails when only one is
inaccessible





Vision

*ATTRI seeks to remove barriers to transportation by leveraging advanced technology to enable people to travel **independently, anytime of the day to any destination**, regardless of their individual abilities.*

Mission

*To transform the mobility of travelers with disabilities by providing the capability to reliably, safely and independently plan and execute their travel **by leveraging principles of universal design and inclusive information and communication technology (ICT)**. ATTRI identifies, **collaborates**, coordinates, develops, and implements **transformative** solutions in advancing accessible transportation and **independent** mobility.*

Mobility for All

The Complete Trip Scenario



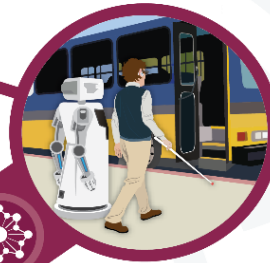
5. Arrival at Destination
Andy safely arrives at his destination, while the **pre-trip concierge application** plans his return trip home.



1. Plan and Book a Trip
Andy uses a **pre-trip concierge application**.



2. Travel to Transit Station
An **automated shuttle** (rideshare service) is dispatched.



4. Cross the Street
As Andy approaches an intersection, his **safe intersection crossing application** communicates with the traffic signal.



3. Ride the Bus
While on the bus, Andy receives direction on when to pull the Stop Request cord from his **wayfinding and navigation application**.



The Challenge



Persons with Disabilities

- 56.7 million; 19% US population
- Unemployment Rate – 13.2 %; Income: \$38,400 (\$61,000)
- Poverty: 24.7% (9.0%)
- Rise in Autism: 1 in 150 (2000) to 1 in 68 (2010)
- Fed expenditures: \$226 B (2002); \$357 B (2008)



Veterans with Disabilities

- 21.4 million Americans are Veterans
- Disability claims: 104,819 (2006) vs. 634,743 (2012)
- 2.6 million deployed in 2012, 45% of eligible Veterans file claims for disability
- Spending: \$0.93 billion (2006) vs. \$5.95 billion (2012)



Older Adults

- Disability rates rise as people get older
- 43.1 million age 65 + in 2012 or 1 in 7 people
- 28% live alone
- Expected to reach 72.1 million by 2030

Impact of Transportation



2x

people say it is important to their Daily Living Needs

76%

say it is important to their job search

29%

consider it a significant problem in accessing jobs

Gaps in the Complete Trip

- ADA largely focused on wheelchair accessibility, fixed-route
- New modes finding accessibility footing
- Automated vehicles are not yet designed to accommodate all users
- Wayfinding technologies do not have accuracy needed for precision navigation

Addressing the Complete Trip takes technology, collaboration and partnerships



Engage Stakeholders to Assess Impacts and Effectiveness of ATTRI technologies

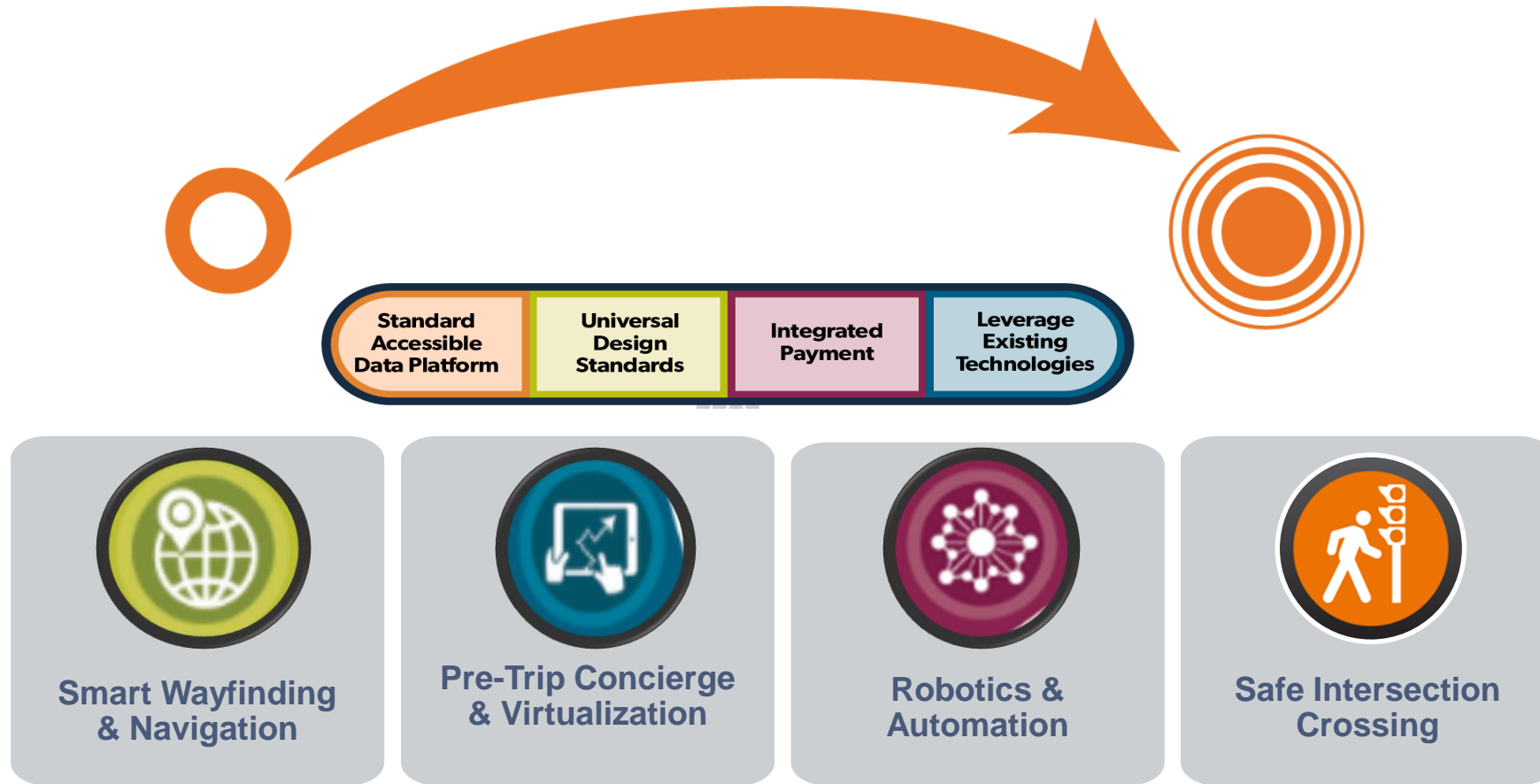
Advance Innovation for Accessible Transportation

Improve Transportation Systems Integration

Coordinate with Key Partners

Demonstrate, Deploy, Evaluate Accessible Transportation Technology

Complete Trip & ATTRI Applications





Wayfinding and Navigation:



CITY COLLEGE OF NEW YORK

Smart Cane for Assistive Navigation (SCAN), a wayfinding solution for those with low vision integrated with a smart phone application



ABLELINK

An open wayfinding media standard and related infrastructure to create geographically-specific, cloud-based libraries of routes in metropolitan or rural areas



PATHWAYS SOLUTIONS

A wayfinding tool for wheelchair users and people with visual impairment that guides users along routes tailored to their preferences



TRX SYSTEMS

A smart wayfinding and navigation system to obtain real-time location, en-route assistance, and situational awareness.

ATTRI Application Development Awards



Pre-Trip Concierge and Virtualization:



ABLELINK

A suite of assessment, self-directed learning, and trip execution technologies to support pre-trip planning for individuals with cognitive disabilities.



Safe Intersection Crossing:

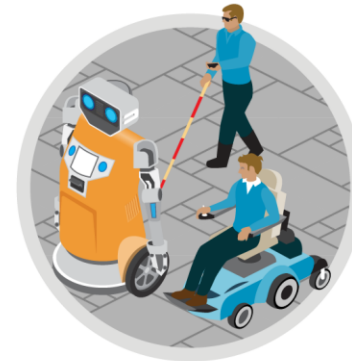


CARNEGIE MELLON UNIVERSITY

A tool to connect pedestrians with disabilities to the traffic signal systems infrastructure (and nearby connected vehicles and infrastructure) and create situational awareness to improve the safety of intersection crossing and increase independent mobility.



Robotics and Automation:



CARNEGIE MELLON UNIVERSITY

Awarded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) this project researches and develops seamless transportation assistance from cloud-based autonomy and shared robots located in and around transportation hubs.

Mobility on Demand

MOD is a *vision* for an integrated **multi-modal** network of **safe, carefree, affordable,** and **reliable** transportation options that are **available to ALL**



Traveler-centric

Technology-enabled

Partnership-driven

Mode-agnostic

Future of Mobility

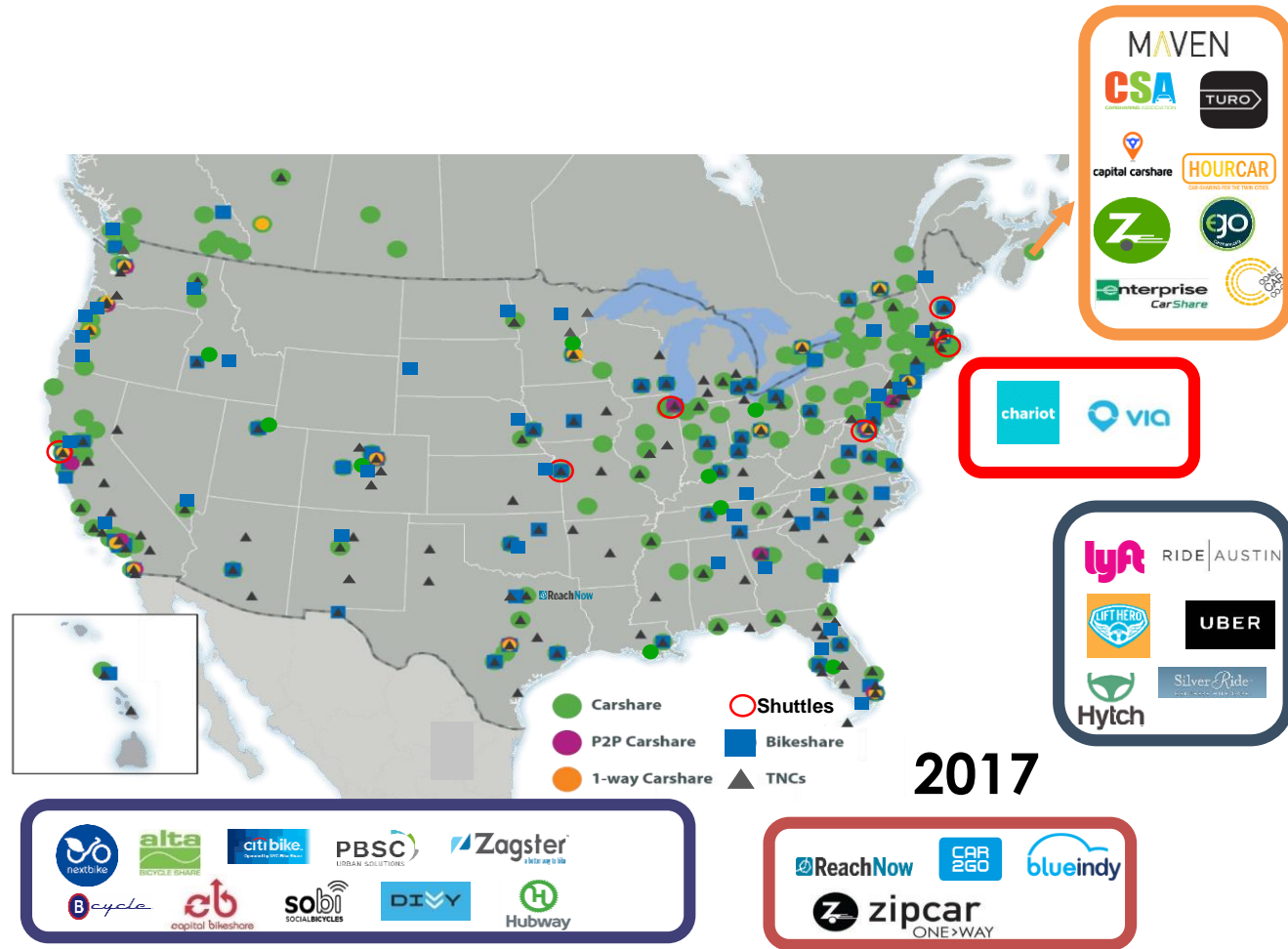


Rapid Growth in Shared Mobility Space

400 Cities with Carsharing

120 Cities with Bikesharing

300 Cities with TNCs



2017

Source: Shared Use Mobility Center (SUMC) and ITS America

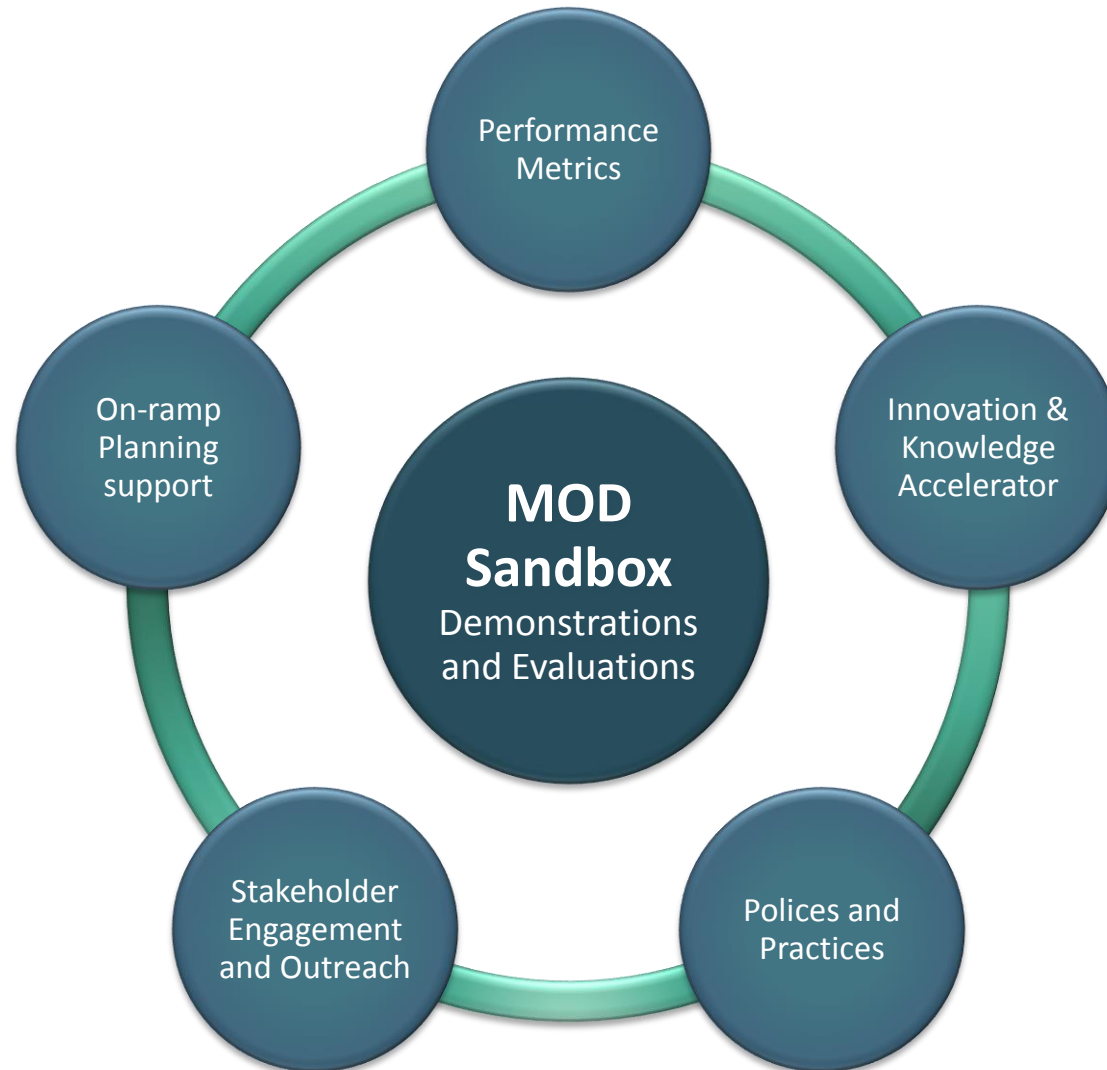
DOT Approach to Future Mobility

- **Explore emerging technology solutions and new business approaches**



- **Enable public transportation industry to adopt innovative mobility partnerships and solutions**
- **Facilitate widespread deployment of proven mobility solutions and partnerships**

FTA MOD Program Activities



2016 MOD Sandbox Program

- **11 projects** demonstrating different approaches, technologies
- Each project leads to **12-month demonstration**
- All projects include **independent evaluation**
- **\$8 Million in Section 5312 Research funds** (projects range from 200K to \$1.35M)
- Minimum 20-percent **local cost-share**
- **Providers of public transportation** with one or more **partners**
- **Competitive** process to select projects



Use Cases from the MOD Sandbox



Trip Planning/Payment Integration

Consolidates options for travelers to plan, book and pay for trips, often through mobile app



First/Last Mile

Bridges gaps in the traditional transportation network by providing trips to and from transit connections



Supplemental/Extended Service

Augments the traditional transportation network when transit service is insufficient or not available



Flexible Pricing /Incentives

Strategies to influence traveler choice on when or how to travel using incentives or games



Innovative Paratransit Services

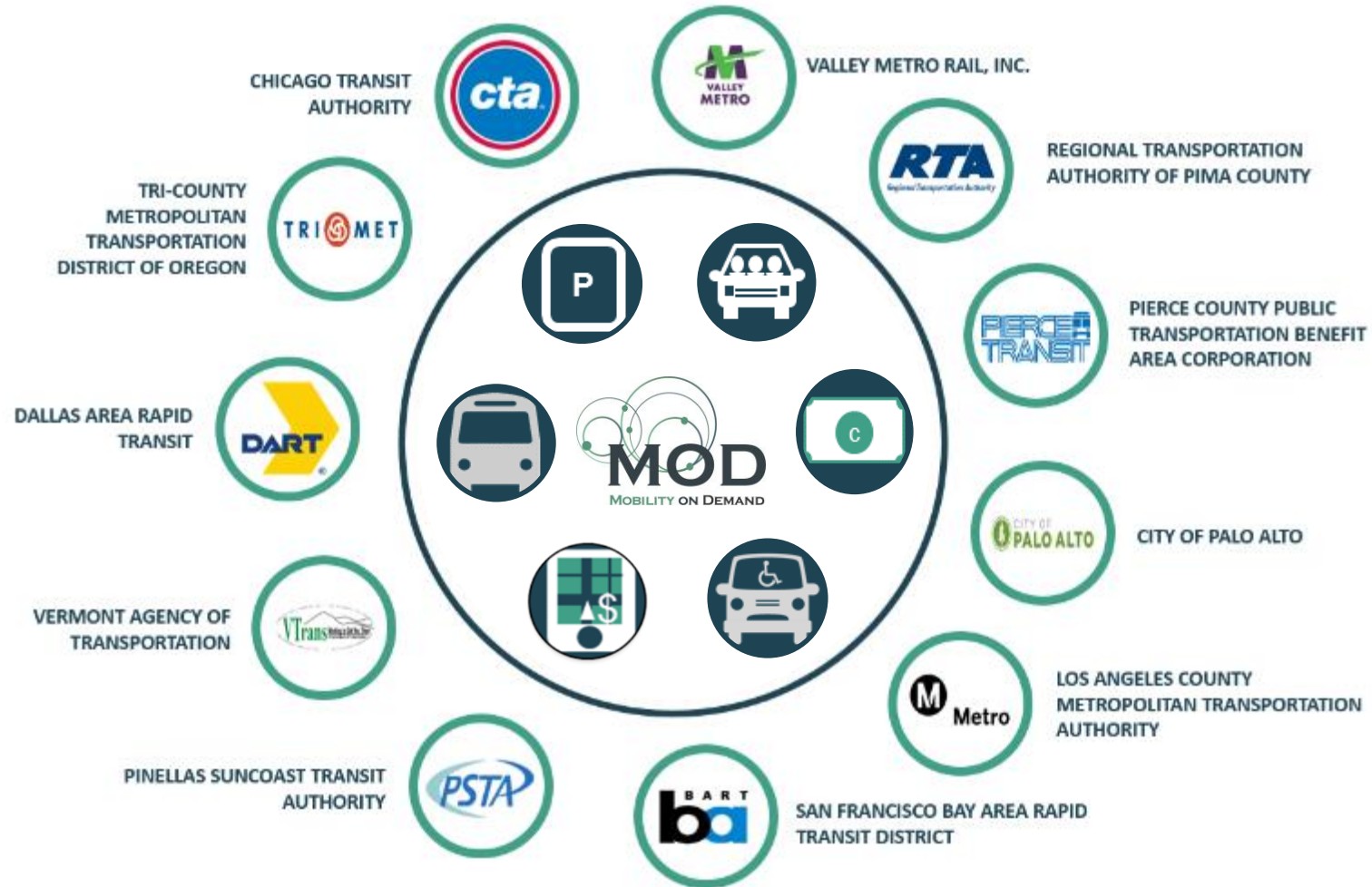
Technologies and tools to enable more flexibility to plan, request, and pay for paratransit trips, greatly reducing booking and response times, and costs



Parking Utilization

Strategies to help manage parking supply to optimize utilization and access to transit for more individuals

2016 Sandbox Projects At a Glance



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Challenges

- Making Connections
- Expanding Options
- Ensuring Viable Business Models
- Guaranteeing Equity

Potentials

- More Mobility
- Inclusion
- Actualization
- A Greater America

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ATTRI Website: http://www.its.dot.gov/research_areas/attri/index.htm

Get on the Better Bus...Ride the Transformed Train

COME ALONG FOR THE RIDE

