



ACCESSIBLE TRANSPORTATION TECHNOLOGIES
RESEARCH INITIATIVE

Accessible Transportation Technologies Research Initiative (ATTRI)

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Accessible Transportation Technologies Research Initiative (ATTRI)

- A U.S. DOT Multimodal Multi-Agency Research and Development Effort
 - Co-led by FHWA, FTA; currently supported by ITSJPO, and NIDRR
 - Identifying user needs of travelers with disabilities to develop new transformative applications to increase their mobility
 - Building strong partnerships with US and International research communities
 - Continues to seek new opportunities to leverage technology deployment and resources
 - Has a unique opportunity to develop and deploy novel applications for accessible transportation
- Accessibility Benefits that Would Extend to All Travelers
- Seeking a national initiative across a broad spectrum of partners



The Challenge



Persons with Disabilities

- 56.7 million; 19% US population ^[1]
- Unemployment Rate – 13.2 %; ^[5] Income: \$38,400 (\$61,000) ^[7]
- Poverty: 24.7% (9.0%) ^[7]
- Rise in Autism: 1 in 150 (2000) to 1 in 68 (2010) ^[9]
- Fed expenditures: \$226 B (2002); \$357 B (2008) ^[8]



Veterans with Disabilities

- 21.4 million Americas are Veterans ^[2]
- Disability claims: 104,819 (2006) vs. 634,743 (2012) ^[14]
- 2.6 million deployed in 2012 ^[3], 45% of eligible Veterans file claims for disability ^[13]
- Spending: \$0.93 billion (2006) vs. \$5.95 billion (2012) ^[14]



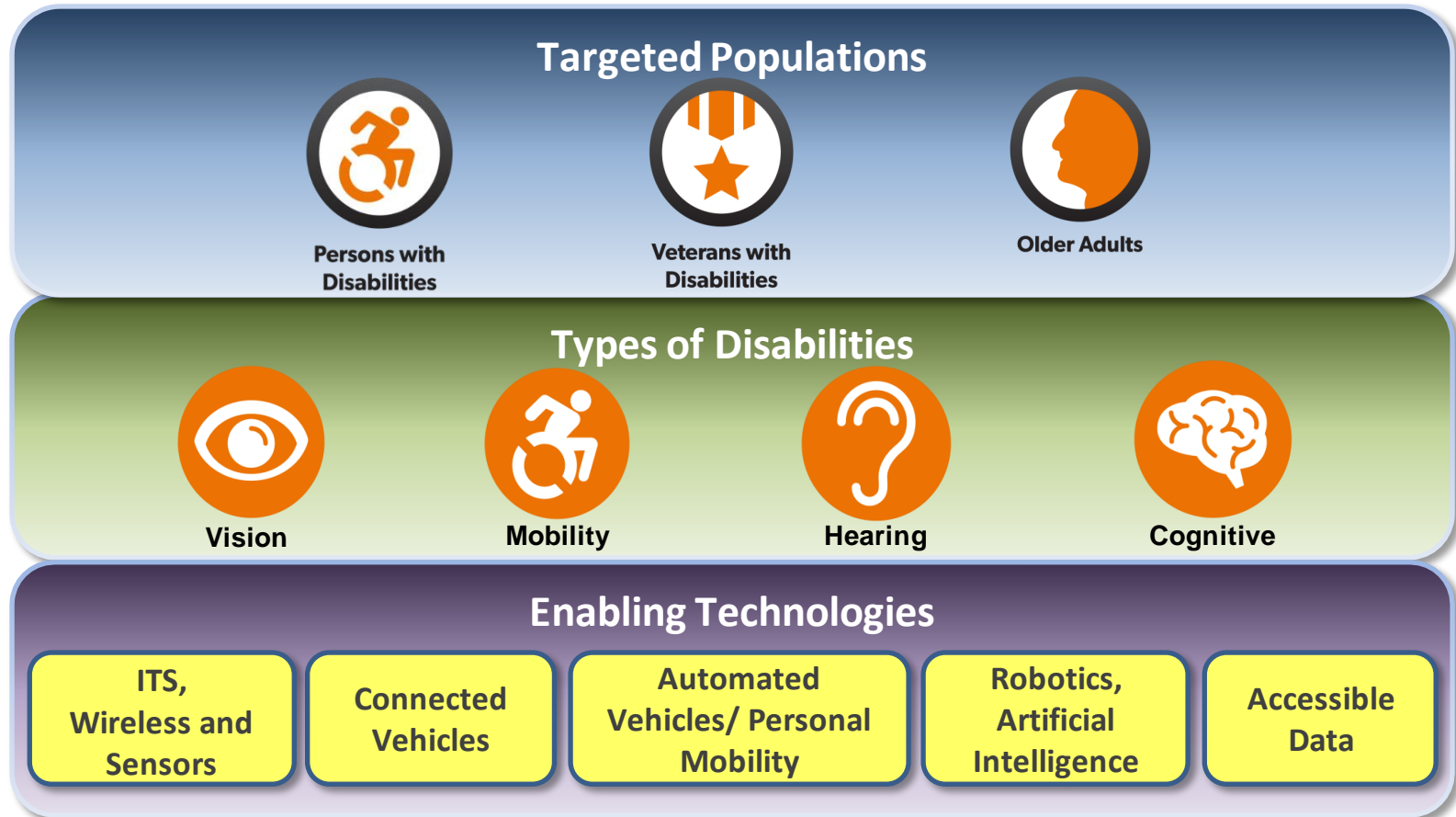
Older Adults

- Disability rates rise as people get older ^[15]
- 43.1 million age 65 + in 2012 or 1 in 7 people ^[4]
- 28% live alone ^[4]
- Expected to reach 72.1 million by 2030 ^[6]

- WHO estimates that more than One Billion people in the world live with some form of disability ^[10]
- The global GDP lost annually due to disability is estimated to be **\$1.37 trillion to \$1.94 trillion** ^[11]
- Australian study: reducing the gap in workforce participation by **1/3** would result in a **\$43 billion** increase in GDP over **10 years** ^[12]

The Role of Transportation

- 76% people with disabilities say adequate transportation is important to their job search
- 29% consider it a significant problem in accessing jobs [1]



Potential Technology Solutions

Wayfinding & Navigation Solutions



- Indoor/Outdoor navigation & orientation Apps
- Situational awareness and text recognition devices

Assistive Technologies



- Travel and emergency announcements with captioning and haptic/flashing alerts
- V2V, V2I and V2P apps for pedestrians

Automation & Robotics



- Personal mobility vehicles for first/last mile
- Virtual caregivers/concierge services with machine vision/AI, V2X

Data Integration



- Accessibility data and information systems
- Interoperability and data needs

Enhanced Human Services Transportation



- Real-time multimodal trip planning & services
- Inclusive one-fare payment application for all travelers
- Paratransit to Fixed-route



ATTRI Phases

PHASE 1

Exploratory & User Needs Research

FY2012-14

- Collaboration Building
- Strategic Plan and Roadmap
- Stakeholder Engagement and User Needs Assessment
- State of the Practice/ Innovation Scan



PHASE 2

Innovation & Prototyping

FY2015-17

- Institutional and Policy Issues Assessment
- International Research Coordination
- ATTRI Social-economic Impact
- Standard Development & Harmonization
- ATTRI Effects on Non-User
- ConOps & System Reqs
- Prototyping

- Accessible Transportation Applications Selection



PHASE 3

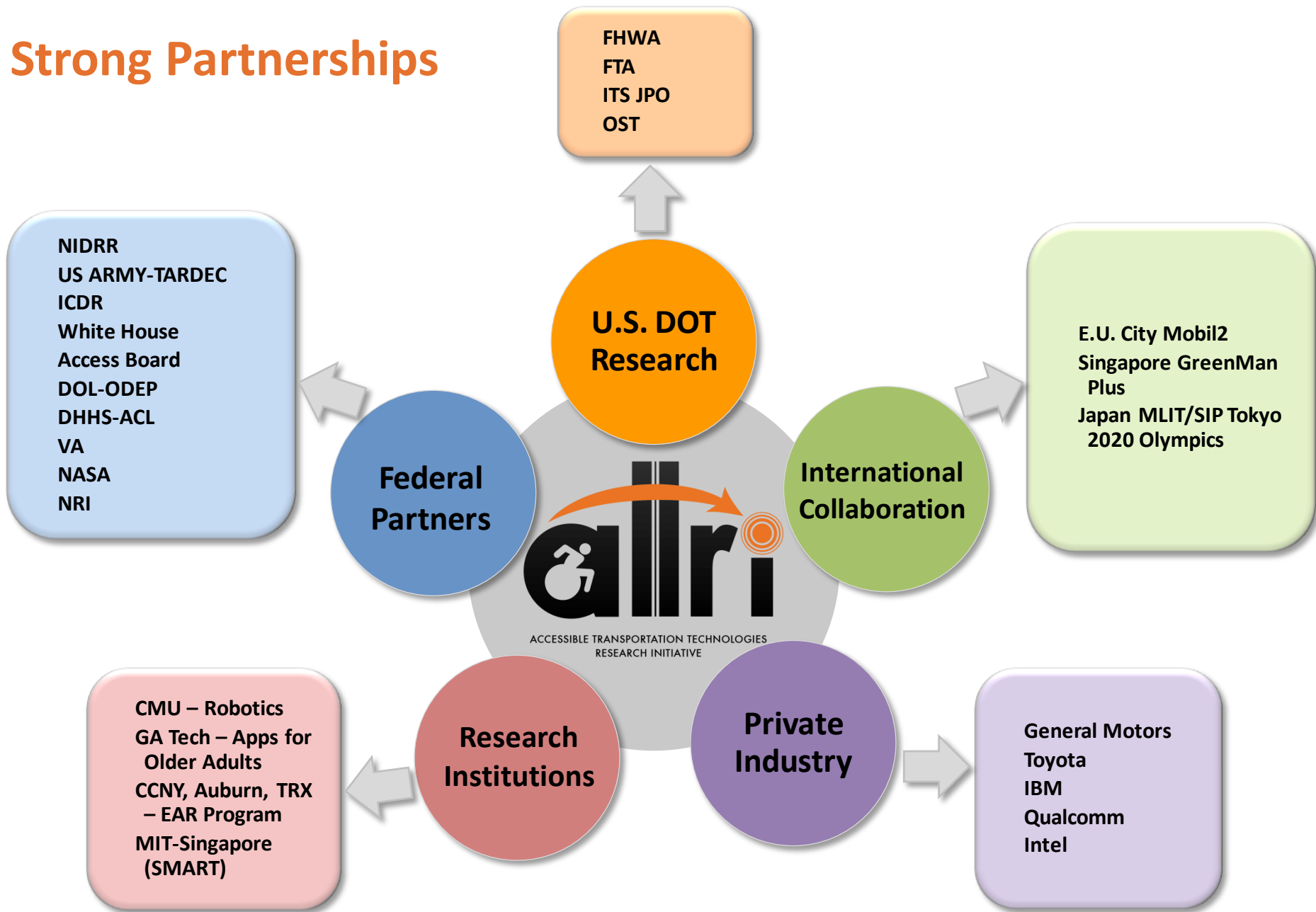
Demonstration

FY2018-19

- ATTRI Joint Demonstrations
- Joint Demonstration Evaluations
- Deployment Guidance



Strong Partnerships



Phase 2 – FY15 Plans

- Procurements:
 - Institutional & Policy Issues Assessment
 - International Research Coordination
 - ATTRI Social-economic Impact
 - Outreach and Coordination
 - Standards Development & Harmonization
- Accessible Transportation Applications Identification and Selection
 - RFI to be released February 2015

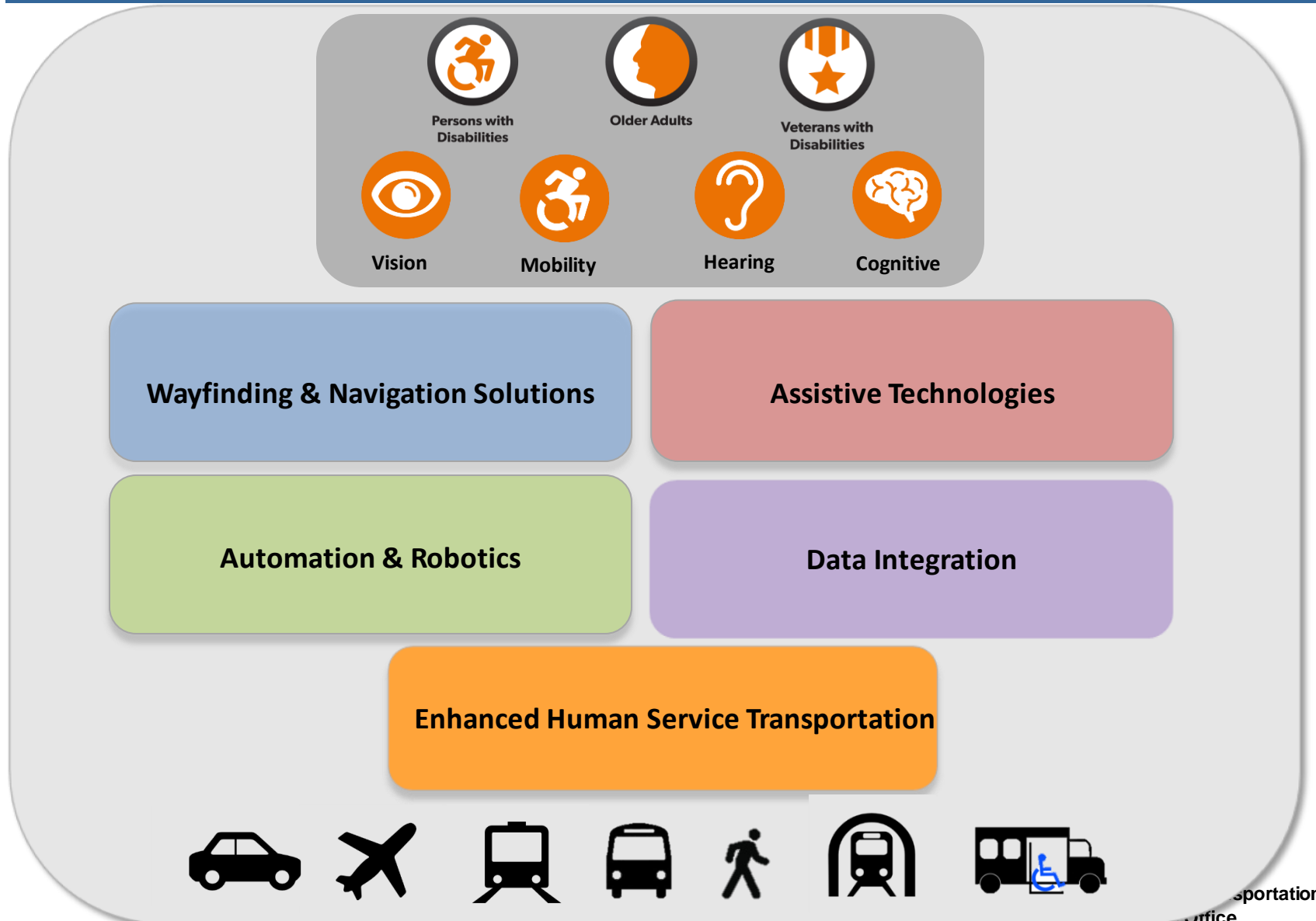


Lessons Learned and Opportunities

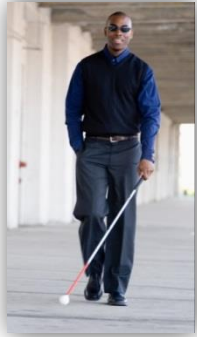
- To meet the diverse needs of travelers with disabilities more than one application is needed
- Applications will have to be integrated or connected to provide total transportation experience
- Need for testing applications in all ATTRI technology areas
- Applications may be within one ATTRI technology area or across multiple technology areas
- Applications are to be designed using universal design principles to ensure benefit to all travelers
- Potential to grow from initial plan of 2 to 4 applications to 2 to 4 integrated applications



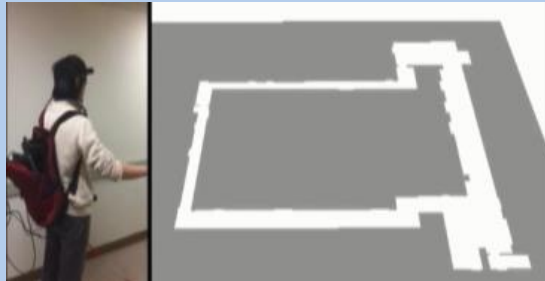
ATTRI Independent Mobility Applications System (Integrated)



Example



Wayfinding & Navigation Solutions



Bill uses wayfinding application to navigate through a new environment

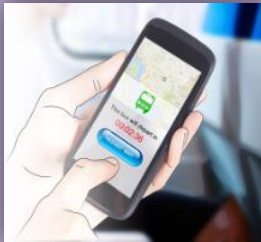
Assistive Technologies



Bill can use his connected smart phone with voice to text features and text recognition capability to identify his environment and receive travel information

Data Integration

Bill's accessibility data is stored in the cloud that allows services to be tailored to his needs



Automation & Robotics



Bill summons a personal mobility vehicle that uses maps to get Bill to his destination

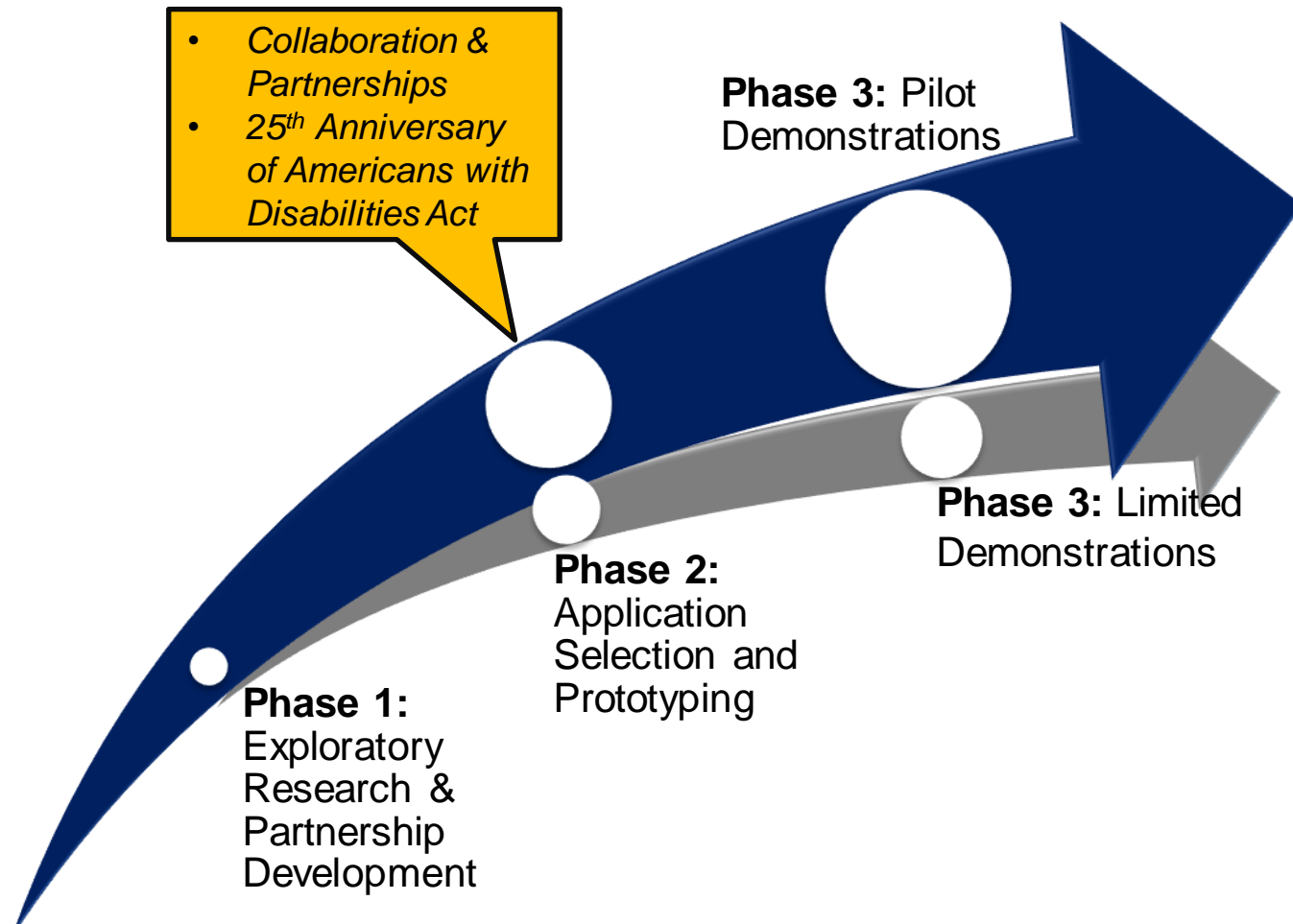
Enhanced Human Service Transportation

- Connection to fixed routes
- One fare payment system



ATTRI Program Trajectory

ATTRI is addressing a significant transportation problem in a comprehensive way



Positions ATTRI Program to capitalize on potential large-scale opportunities



Key ATTRI Events/Dates

- Stakeholder engagement webinars/workshops – February to April 2015
- ATTRI application ideas, RFI – February 2015
- ATTRI applications selection workshop – May 2015
- New RFP for procurements

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