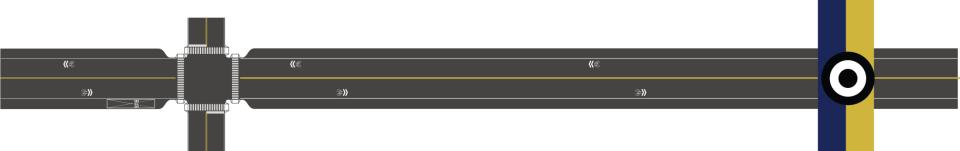
Urban Mobility Efficiency

NAE Frontiers of Engineering June 16, 2016

Dr. Kari Watkins Georgia Institute of Technology

Dr. Nobuaki Ohmori Utsunomiya University



Whole New World



Transportation is changing dramatically

- Information and Communications Technologies (ICT)
- Shared Economy
- Autonomous Vehicles



New Transportation Services



What are the impacts of ICT?

Why Shared Transportation?



Are we willing to share?

0

Autonomous Vehicles

Great Mileage Some Benefits of the Driverless Car

Google's Aspiration

Potential Annual Benefits (US only)

- 90% reduction in accidents
- 4.95 million fewer accidents
 30.000 fewer deaths
- 2 million fewer injuries
- \$400 billion in accident-related cost savings

4.8 billion fewer

fuel savings

fuel costs

commuting hours

1.9 billion gallons in

 \$101 billion saved in lost productivity and

- 90% reduction wasted commuting
- 90% reduction in cars
- Reduce cost per tripmile by 80% or more
- Increase car utilization from 5-10% to 75% or more
- Better land use

Sources: Google, US NHTSA, AAA, Texas A&M Transportation Institute, Columbia University Earth Institute and Devil's Advocate Group's analysis



Will it increase or decrease travel?



Longstanding Problems

- System reliability and resilience
- Avoidable safety impacts
- Unsustainable impacts on energy, climate and the environment
- Equity, accessibility and changing sociodemographics
- Dense land use and urban migration

Can these new innovations fix these longstanding issues?

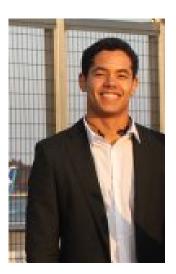
Dr. Myra Blanco Virginia Tech Transportation Institute





Dr. Kay Kitazawa Rebuild Japan Initiative Foundation





Dr. Joan Walker University of California at Berkeley Dr. Giancarlos Troncoso Parady University of Tokyo

To Answer These Questions, We Need:

- New data
 - Naturalistic driving studies Myra
 - Social network data Giancarlos
- New models
 - Modality Style models Joan
- New paradigms
 - Built environment effect on travel behavior Giancarlos
 - Socio-economic context and aging populations Kay

Dr. Myra Blanco

Director, Center for Public Policy, Partnerships, & Outreach Virginia Tech Transportation Institute



Dr. Kay Kitazawa Research Director Rebuild Japan Initiative Foundation



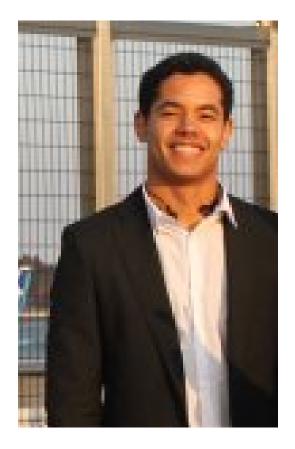
Group Photo

- We will take group photo on the lawn area outside the Atrium
- Please move there promptly.

• We'll reconvene at 11 AM after the coffee break.



Dr. Giancarlos Troncoso Parady Assistant Professor University of Tokyo



Dr. Joan Walker Associate Professor University of California at Berkeley



