Opportunities and Challenges of Adopting Alternative Fuel Vehicles (AFV) in Shared Mobility

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BACKGROUND & OBJECTIVE

Can Shared Mobility be a path to increased adoption of AFVs?

Background: Urban mobility faces transformation given the rise of shared and electric mobility and the need for fuel efficiency as well as improved mobility for everyone. Toyota has committed to a 90% reduction in fossil fuel fleet emissions by 2050, and aims to increase sales of AFVs while improving access to mobility globally.

Objective: (1) Identify opportunities/challenges to introduce AFVs in shared mobility, (2) improve mobility for underserved people.


ANALYSIS

Is Shared Mobility Sustainability-Oriented Innovation (SOI)? Yes.

Businesses profitable and scalable

Customer mobility needs met

Mobility more efficient

SCENARIO ANALYSIS

Can Shared Mobility with AFVs be SOI? Not today.

SUSTAINABILITY ORIENTED INNOVATION

Shared Mobility (Today, w/o AFV)

Good for System

Shared Mobility with AFVs (Scenario: Today)

Good for Business

– Fulfilled

Good for Customer

– Fulfilled

Failure mode:
Addressing a market too small, costly, or under-resourced to scale or sustain

Findings & Recommendations

The Future of Shared Mobility is not Electric, but Hybrid.

• Shared Mobility is unlikely a sustainable path to increased adoption of AFVs in the near future

• Shared Mobility can help improve mobility for underserved communities in conjunction with public transportation. Highly cost and fuel efficient (hybrid) vehicles are needed

• Opportunities: (1) Expand Hybrid Portfolio for Shared Mobility, (2) Expand pilots with Electric Two-Seaters (i.e., iRoad), (3) Shared Mobility pilot with long-range/fast charging AFVs & public private partnerships, (4) Evaluate SOI w/ Fuel Cell Vehicles, (5) Autonomous Electric Vehicles

• Challenges: Charging Infrastructure, Costs, Scalability, Acceptance, Standards, Range Anxiety