



CHANGING WHAT'S POSSIBLE

# Breakout Group1 (Monday PM)

## Discussion Summary

March 10, 2014

**Sacramento, CA, March 10, 2020.** Today, the California Department of Transportation (Caltrans) announced that plans for widening the I-405 corridor in Los Angeles have been put on hold indefinitely. In a press release, Governor Garcia said, “Six years ago, we thought that added capacity was the primary way to reduce congestion on California’s roadways. Now, with the increasing adoption of the StarRoute system by various consumer smartphone apps, travelers are more and more becoming the solution, rather than the problem.” In a related statement, the developers of StarRoute acknowledged the seminal contributions of the STAR Program, funded in 2015 by the U. S. Department of Energy’s Advanced Research Projects Agency—Energy (ARPA-E). “ARPA-E connected visionaries in transportation data, network modeling, and personal incentives to create a flexible, adaptive framework for transportation control that travelers actually want to use”, a spokesman for StarRoute said.

Premise: You are the integrated Data and Modeling team of StarRoute, and are being debriefed by the National Academies on the key features that enabled the successful implementation of the system.

Questions:

1. When you were asked to combine the technical roles of data collection and network modeling, what was the most difficult obstacle you faced? How were you able to overcome it?
2. Successful implementation of traveler incentives is a key accomplishment of StarRoute. What were the most important aspects of these incentives that facilitated your team's approach to Data and Models?
3. It has been difficult to quantify the impact of StarRoute on congestion. How do you determine the impact of proposed improvements in Data and Models, in light of this difficulty?

# When you were asked to combine the technical roles of data collection and network modeling, what was the most difficult obstacle you faced? How were you able to overcome it?

- We defined the question precisely and figure out the appropriate data to collect across multiple travel modes.
- We figured out how to collect data locally, send it for aggregate analysis (incl. prediction), verify it then send recommendation back to the user securely (all in real time). Local vs. central operations were optimized.
- People trusted the system because we did a compelling demonstration and the recommendations were good.

# Successful implementation of traveler incentives is a key accomplishment of StarRoute. What were the most important aspects of these incentives that facilitated your team's approach to Data and Models?

- Reservations increased predictability of the system and helped travelers optimize their route and timing. System told user if their normal plan could have problems on a given day. Also applied to HOV lanes.
- Employers contributed by agreeing to more flexible work arrangements.
- We provided incentives to get people to use this, but then it became self-sustaining. We continued to monitor to make sure users didn't go completely off the reservation. People continued to trust that the system was benefiting them.

## It has been difficult to quantify the impact of StarRoute on congestion. How do you determine the impact of proposed improvements in Data and Models, in light of this difficulty?

- It's really hard to measure efficacy, but you can get away with less granular data if you have a lot of it. It would be better to do a randomized controlled trial (is that even possible?) You could do RCTs on a piece/proxy, rather than the collective energy benefits.
- ARPA-E relevant metrics: fuel savings and emissions. We had a better handle on total lifecycle costs. We took vehicle technology into account and local fuels.
- Cities that adopted StarRoute early on showed a marked benefit in factors that the population cared about. We had both engineering parlance and political lies parlance and managed both.