SHARK TANK
Change is Coming: Who Will Survive?

AVS 2017
Wednesday, July 12, 2017
Breakout Session 19
General Goals

• Have fun!!
• Generate active debate among presenters, sharks, and audience
• Shed light on some controversial topics
• Scorecard
  – Clearly yes on first two goals
Topics

• The End of Traffic Congestion
  – Richard Mudge, Compass Transportation

• Freight Revolution
  – Steve Boyd, Peloton Technologies

• Will State and Local Transport Agencies Fade Away?
  – Baruch Feigenbaum, Reason Foundation

• No One Owns Cars Any More
  – Susan Shaheen, Director of Innovative Mobility Research, University of California at Berkeley
Highlights (1)

• End of Congestion
  – Very large net economic benefits
  – Induced Demand means VMT will increase
  – Per mile cost of AVs will be quite low – discouraging private car ownership
  – Need a reservation system for individual trips
  – Shared vehicles an important solution

• Freight Revolution
  – Should consider freight options other than standard truck size
  – Public safety an important issue
  – Amazon purchase of Whole Foods has major implications for urban freight
Highlights (2)

• State and Local agencies fade away
  – No real disagreement from audience
  – Why aren't transit agencies adapting?
  – Will contracting out lead to private monopolies?
  – How to guarantee service equity

• No One Owns Cars
  – Function of land use and density
  – 0-10 years in city center; 25 years for suburbs
  – VMT and PMT decrease
Sharks

• Alain Kornhauser, Princeton University
• Brad Templeton, Singularity University
• Jim Scheinman, Maven Ventures
• Iain Forbes, UK Ministry of Transportation
• Chris Gerdes, Stanford
• Reinhard Pfliegl, A3PS
• Reporter: Jonathan Koopmann, Volpe Center
Shark Tank: Will State and Local Transport Agencies Fade Away?

Baruch Feigenbaum
Assistant Director Transportation Policy—Reason Foundation
TRB/AUVSI Automated Vehicle Symposium
San Francisco, CA
July 12, 2017
Automotive Vehicles are a Disruptive Technology

- Emerging technologies that displace established ones.
  - Sustaining: Well known undergo successive improvements
  - Disruptive: Unproven, unknown, may lack refinement

- Generally they
  - Change how people live
  - Create new markets and business opportunities
  - Shift existing business models
Current Disruptions

- World’s largest taxi company has no cars (Uber)
- Largest accommodation provider has no real estate (Airbnb)
- World’s largest movie house owns no cinemas (Netflix)
- Largest software vendors do not write apps (Apple and Google)
- Significant disruption today not just in transportation
What Makes a Technology Disruptive

- Simpler and cheaper to make
- Becomes more reliable and convenient than established technologies
- Rapidly advancing or experiencing breakthroughs
- Relatively fast market penetration
- Supplant existing technologies
- Significant economic impact
Government Has Had Three Primary Roles in Automobiles

- Guide/Incentivize development of vehicles
  - Development incentives
- Provide funding for roadways/transit
  - Transit subsidies
- Build roadways/transit
- Only small parts of each traditional role are necessary
Automated Vehicles are Being Developed by the Private Sector

- Automated vehicles are being developed because there is a business case and the technology is maturing
- Automakers are partnering with software companies
  - Ex) Google has multiple partnerships
- V2V technology is largely embraced by automakers
- V2I technology is helpful in certain situations but can be accomplished by 5G when necessary
  - Freeway merging
  - DSRC is not needed
Transit Services are Going to be Provided by AVs/Private Sector

- Lyft/Uber revolutionized taxi industry by providing credit card payment, service in underserved areas.
- AVs will substantially reduce bus service by providing transit services in low-density areas (most of the U.S.).
- Shared AVs will be the new paratransit service.
- On-demand private bus services will provide rides in many areas.
  - Similar to Chariot which is being acquired by Ford.
Demand for Construction/Infrastructure Will Decrease

- VMT will increase
  - If it leads to new economic development it is a good thing which can be solved with pricing to solve externalities

- Some vehicles will be shared

- Road capacity will increase about 300 percent with V2X

- Cars will sense surroundings and need fewer road markings, signs

- New capacity will be needed at a much lower rate
Technology Will Address Transportation Funding

- Automated vehicles will encourage mileage-based-user-fee development which will be simpler to collect/index once mature
- Less new infrastructure means almost all funding can be dedicated to maintenance
- Private sector operation means less funding can be spent on operations
## Transportation Agencies are Going to Change Radically: State DOTs

<table>
<thead>
<tr>
<th>State DOT Today</th>
<th>State DOT Future</th>
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<tbody>
<tr>
<td>Provide funding/financing</td>
<td>Provide financing but more limited funding</td>
</tr>
<tr>
<td>Build/Maintain Roadways</td>
<td>Build fewer roadways, contract out maintenance</td>
</tr>
<tr>
<td>Manage 511 Systems</td>
<td>V2X provides information data</td>
</tr>
<tr>
<td>Manage contracts</td>
<td>Manage fewer contracts</td>
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</tbody>
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Transportation Agencies are Going to Change Radically: Transit

<table>
<thead>
<tr>
<th>Local Transit Agency</th>
<th>Local Transit Agency</th>
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<tbody>
<tr>
<td>Build capital projects/own transit vehicles</td>
<td>Contract out for most transit services</td>
</tr>
<tr>
<td>Operate every transit line except demand response</td>
<td>Employ management only</td>
</tr>
<tr>
<td>Employ large number of operators</td>
<td></td>
</tr>
<tr>
<td>Operate maintenance garages</td>
<td>Contract out maintenance</td>
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</tbody>
</table>
Questions

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