Automated Vehicles – Embracing the Impact

ROBERT FISCHER, GTiMA PRESIDENT
Today’s Agenda

• **Why** Now?

• **When** will they arrive?

• **How** should public authorities prepare for – and leverage - this technology to solve our most pressing societal problems?
Why automated vehicles?
Why automated vehicles?

Fatal Vehicle Crashes in the United States

- 1995: 45k
- 1996: 40k
- 1997: 35k
- 1998: 30k
- 1999: 25k
- 2000: 20k
- 2001: 15k
- 2002: 10k
- 2003: 5k
- 2004: 0
- 2005: 0
- 2006: 0
- 2007: 0
- 2008: 0
- 2009: 0
- 2010: 0
- 2011: 0
- 2012: 0
- 2013: 0
- 2014: 0
- 2015: 0
- 2016: 0
- 2017: 0

Potential: 0?
Why automated vehicles?

Crash Reduction Related to ADAS Systems

- **Forward Collision Warning**
- **Automatic Emergency Braking**
- **Volvo City Safety**

- **Rear-end collision**
- **Injuries**
Why automated vehicles?
Why automated vehicles?


- Transportation: 28%
- Industry: 22%
- Electricity: 28%
- Commercial & Residential: 11%
- Agriculture: 9%

When will they arrive?
Why now, and **when** will they arrive?

### Automation Levels & Availability

<table>
<thead>
<tr>
<th></th>
<th>LEVEL 1</th>
<th>LEVEL 2</th>
<th>LEVEL 3</th>
<th>LEVEL 4</th>
<th>LEVEL 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Driver Involvement</strong></td>
<td>Active</td>
<td>Active</td>
<td>Available to assume control</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td><strong>Availability</strong></td>
<td>2010 and earlier</td>
<td>2013</td>
<td>2017</td>
<td>2020 and later</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>ADAS</strong></td>
<td>Cruise control</td>
<td>Adaptive cruise control</td>
<td>Traffic jam assistance</td>
<td>Automated in designated areas</td>
<td>Automated everywhere</td>
</tr>
</tbody>
</table>

Mandli Communications

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Roadview
Why now, and **when** will they arrive?

Source: Baird Research
Why now, and **when** will they arrive?

- Without regulation, technologies proliferate over 4-5 design cycles or 20-25 years.
- With mandates, adoption can be much quicker, in the 10 year timeframe.

*Source: Baird Research, Ward’s Automotive*
How should government prepare for AV Tech?
How should government prepare for AV tech?

2018 AV Preparedness Index

1. Netherlands
2. Singapore
3. US
4. Sweden
5. UK
6. Germany
7. Canada
8. UAE
9. New Zealand
10. South Korea
11. Japan
12. Austria
13. France
14. Australia
15. Spain
16. China
17. Brazil
18. Russia
19. Mexico
20. India

Methodology
- Policy and Legislation
- Technology and Innovation
- Infrastructure
- Consumer Acceptance

Result Breakdown
- 8 European
- 1 Middle East
- 5 Asian
- 2 North American (US and Canada)
- 2 South/Central America (Mexico and Brazil)
- 2 South Pacific (Australia/New Zealand)
How should government prepare for AV tech?

Policy and Legislation

Source: Autonomous Vehicle Readiness Index, KPMG International, 2017
How should government prepare for AV Tech?

POLICY & LEGISLATION

Singapore

Netherlands
How should government prepare for AV Tech?

TECHNOLOGY AND INNOVATION

1st
United States

2nd
Sweden

3rd
Germany
How should government prepare for AV Tech?

TECHNOLOGY AND INNOVATION

GM

CHRYSLER

Ford

WISCONSIN AUTOMATED VEHICLE PROVING GROUNDS

MANDLI COMMUNICATIONS

GTiMA

ROADVIEW
How should government prepare for AV Tech?

TECHNOLOGY AND INNOVATION

Number of patents issued:

- 1\textsuperscript{st} Japan 3,089
- 2\textsuperscript{nd} Germany 1,482
- 5\textsuperscript{th} US 915 (behind South Korea and Sweden)
How should government prepare for AV Tech?

7th Place
U.S.

INFRASTRUCTURE

Source: Global EV Outlook 2017, International Energy Agency
How should government prepare for AV Tech?

**USER ACCEPTANCE**

1. Singapore
2. Netherlands
3. U.K.
4. U.S.

Proportion of population living in AV test area

Source: Initiative on cities and autonomous vehicles, Bloomberg Philanthropies and Aspen Institute
Conclusion

So what does this all mean?
Conclusion

RESTRUCTURE
Conclusion

INVEST IN INFRASTRUCTURE
Conclusion

Mandli/HAVI AV Maturity Model

Level 1
Ad Hoc

Level 2
Managed

Level 3
Optimized

Digital Twins

Plan For Every Section
PFES
Conclusion

COLLABORATE
Thank you!

Robert Fischer
GTiMA President
202.568.2273
rfischer@usgtima.org