



Automated Vehicles – Embracing the Impact

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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?



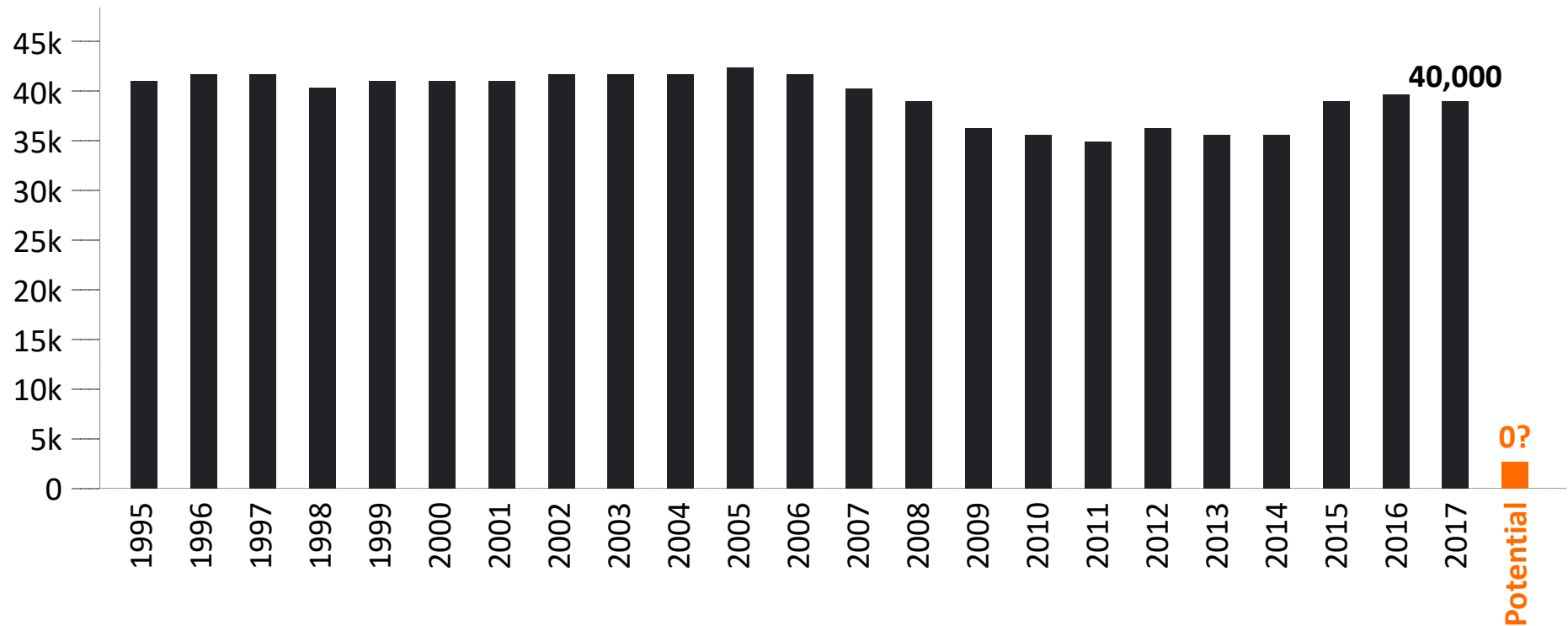
Why automated vehicles?



Why automated vehicles?

SLIDE 4

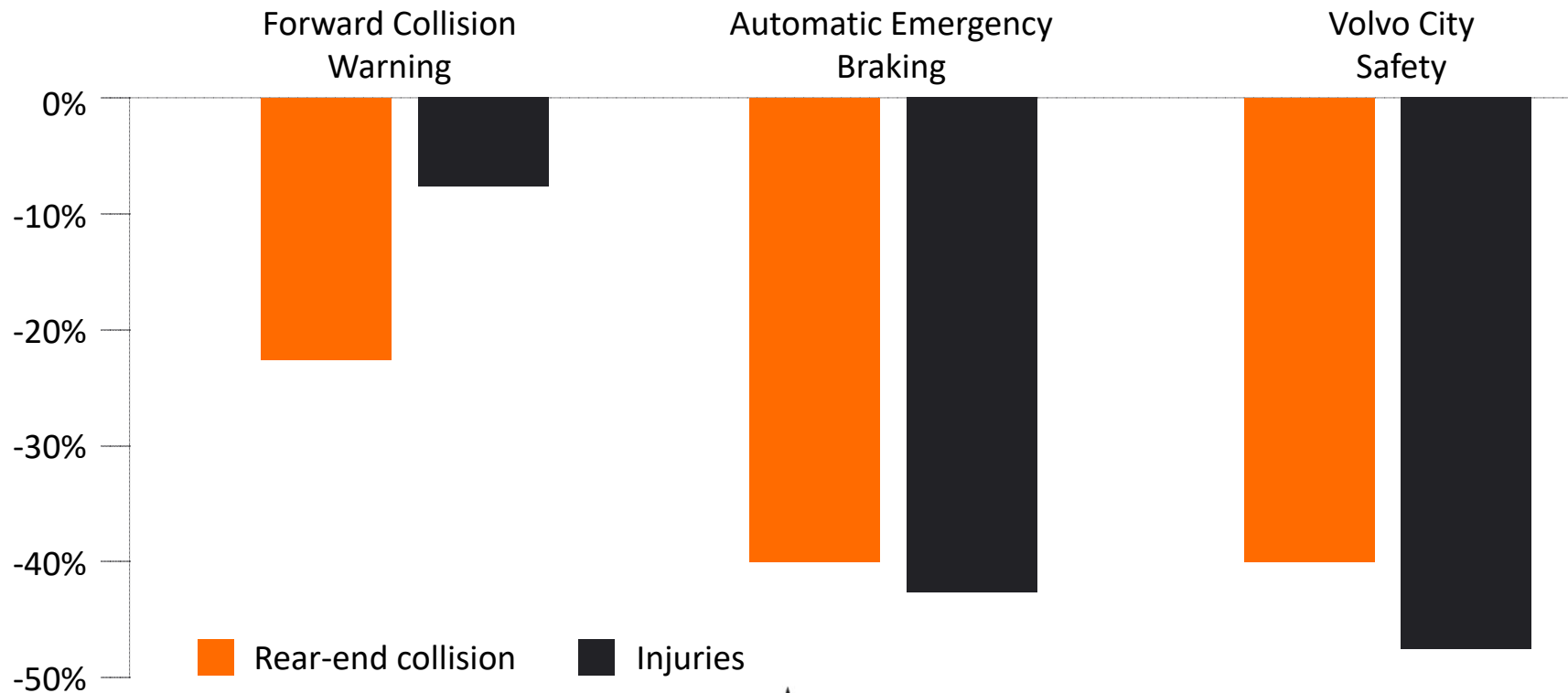
Fatal Vehicle Crashes in the United States



Why automated vehicles?

SLIDE 5

Crash Reduction Related to ADAS Systems

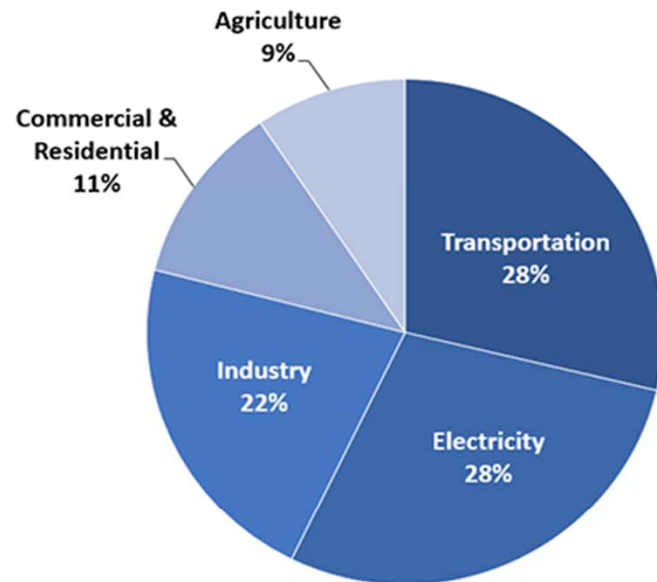


Why automated vehicles?



Why automated vehicles?

Total U.S. Greenhouse Gas Emissions
by Economic Sector in 2016



U.S. Environmental Protection Agency (2018). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016



When will they arrive?

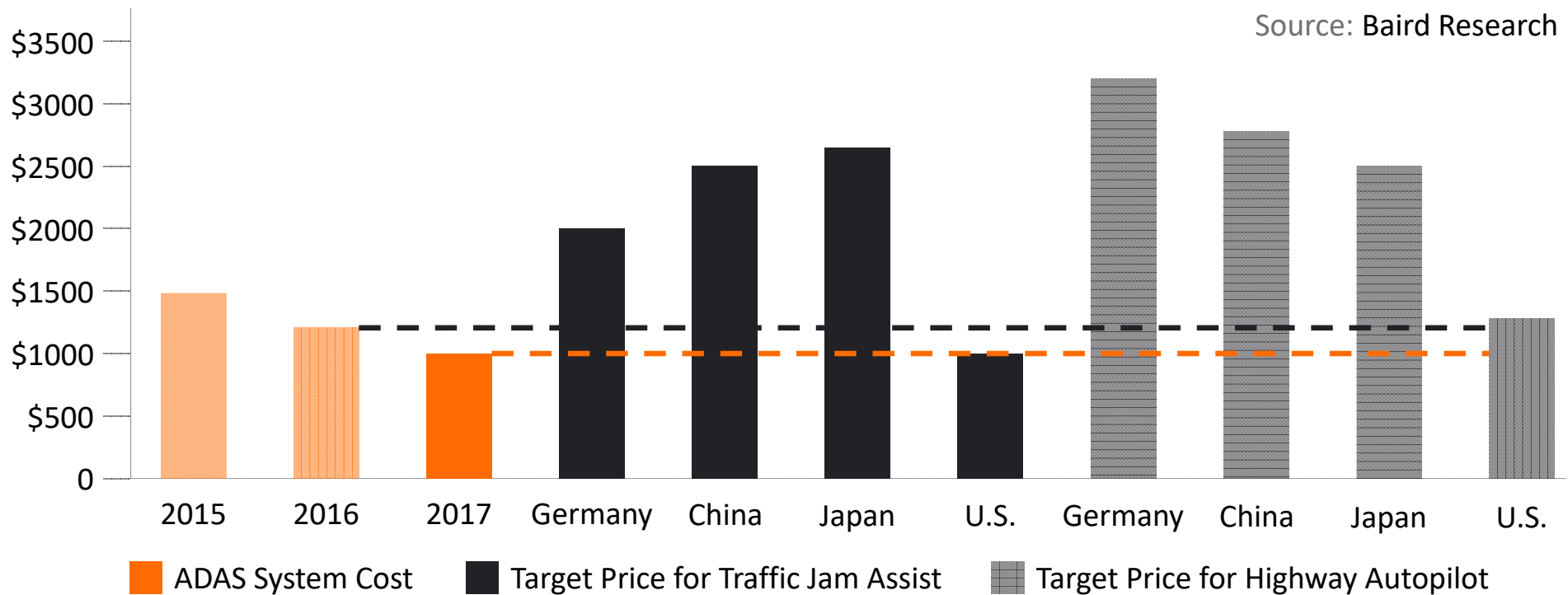


Why now, and **when** will they arrive?

Automation Levels & Availability

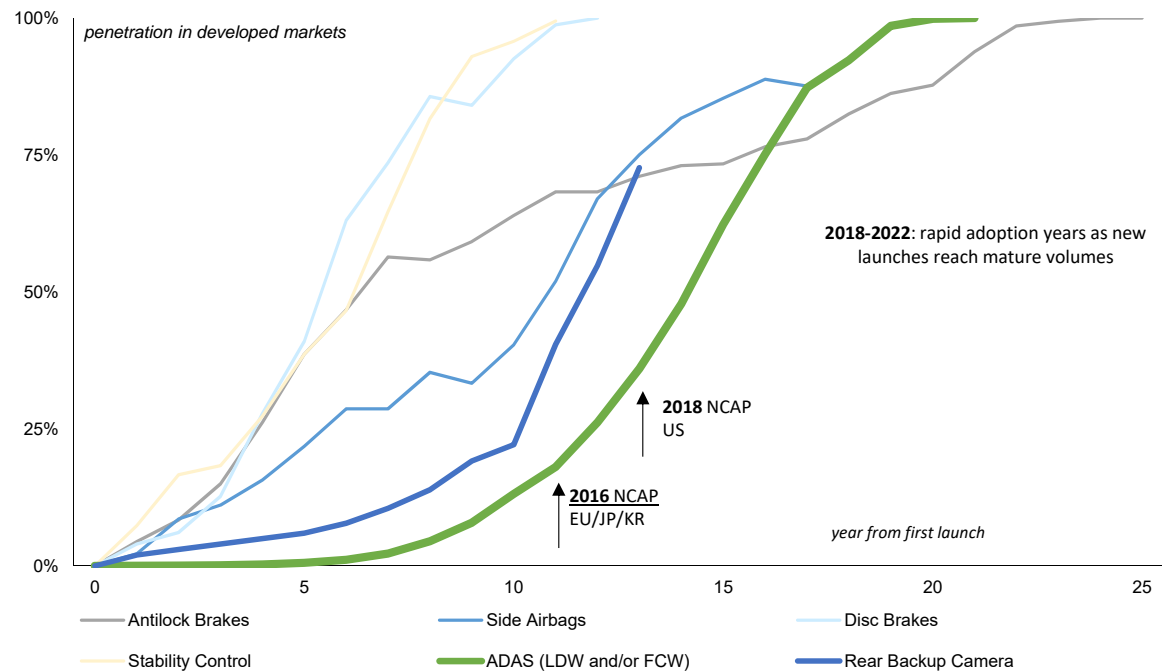
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Driver Involvement	Active	Active	Available to assume control	None	None
Availability	2010 and earlier	2013	2017	2020 and later	Unknown
ADAS	Cruise control	Adaptive cruise control	Traffic jam assistance	Automated in designated areas	Automated everywhere

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



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



Methodology

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

Result Breakdown

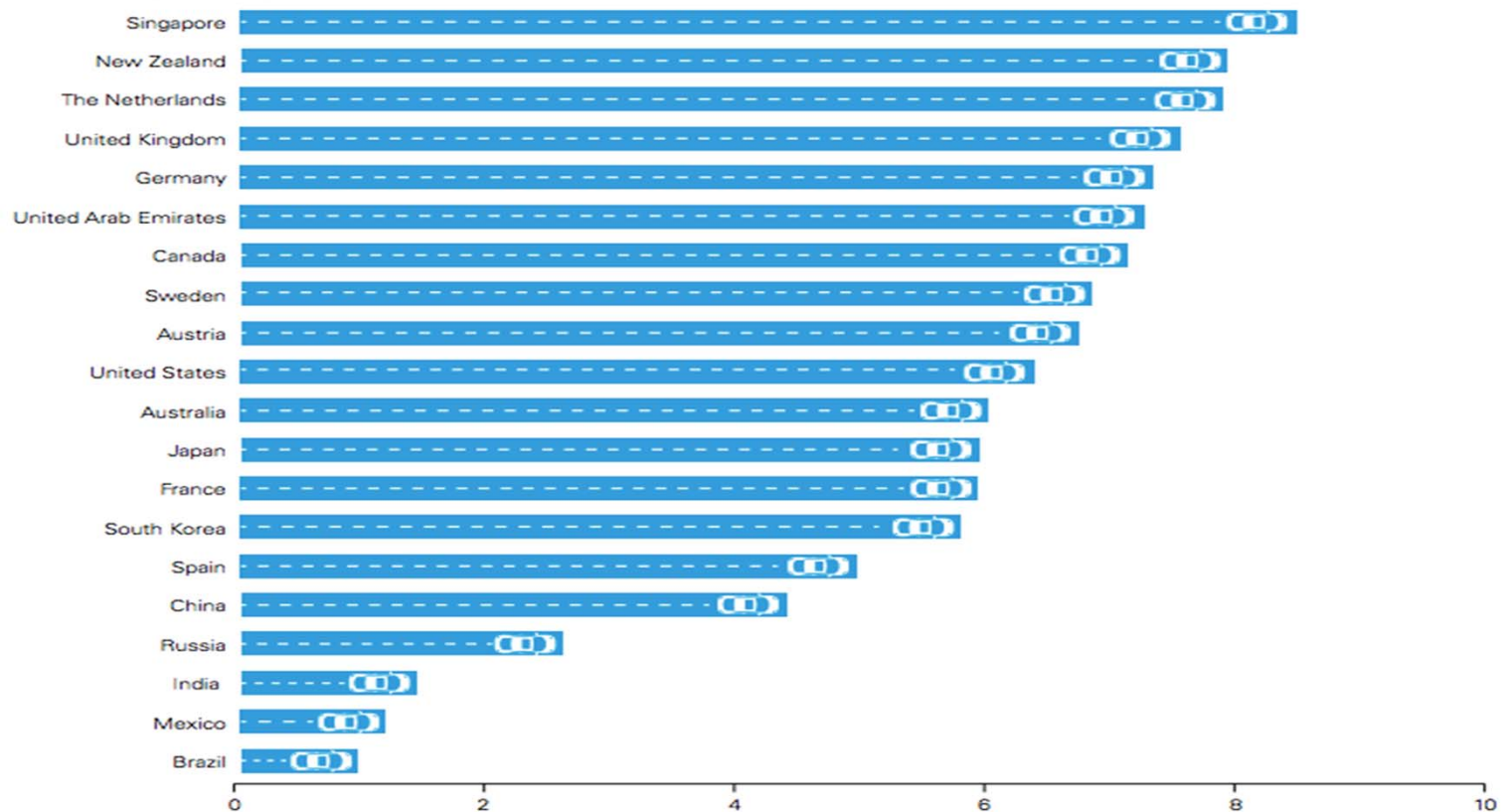
- 8 European
- 1 Middle East
- 5 Asian
- 2 North American (US and Canada)
- 2 South/Central America (Mexico and Brazil)
- 2 South Pacific (Australia/New Zealand)



How should government prepare for AV tech?

Policy and Legislation

Policy & legislation pillar: score by country



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



United States



Sweden



Germany

How should government prepare for AV Tech?

TECHNOLOGY AND INNOVATION



WISCONSIN
AUTOMATED VEHICLE
PROVING GROUNDS

How should government prepare for AV Tech?

TECHNOLOGY AND INNOVATION

Number of patents issued:

- 1st Japan 3,089
- 2nd Germany 1,482
- 5th US 915 (behind South Korea and Sweden)



How should government prepare for AV Tech?

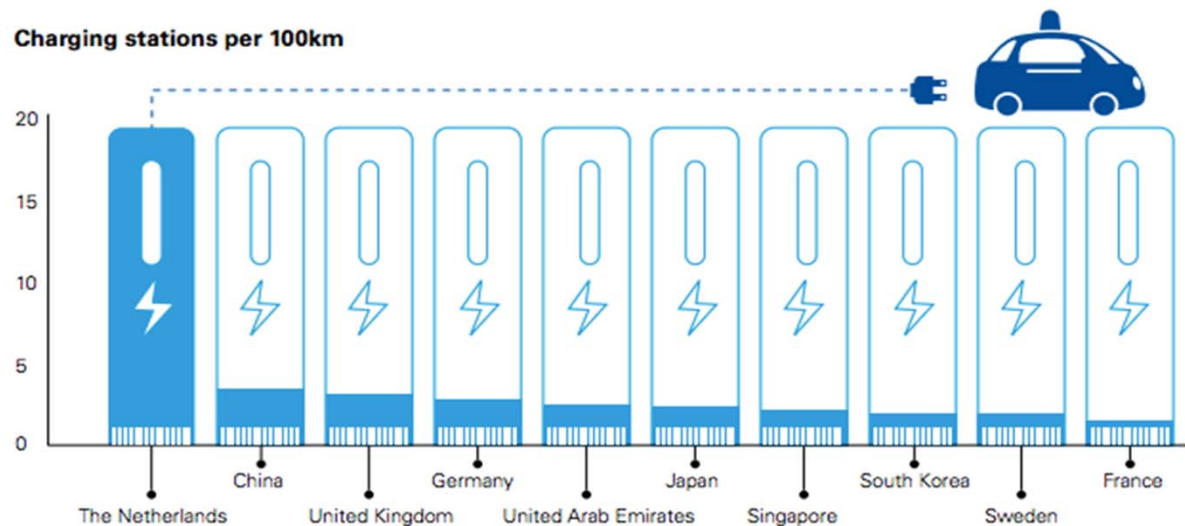


7th Place
U.S.



INFRASTRUCTURE

Charging stations per 100km



Source: Global EV Outlook 2017, International Energy Agency



How should government prepare for AV Tech?

USER ACCEPTANCE



Singapore



Netherlands



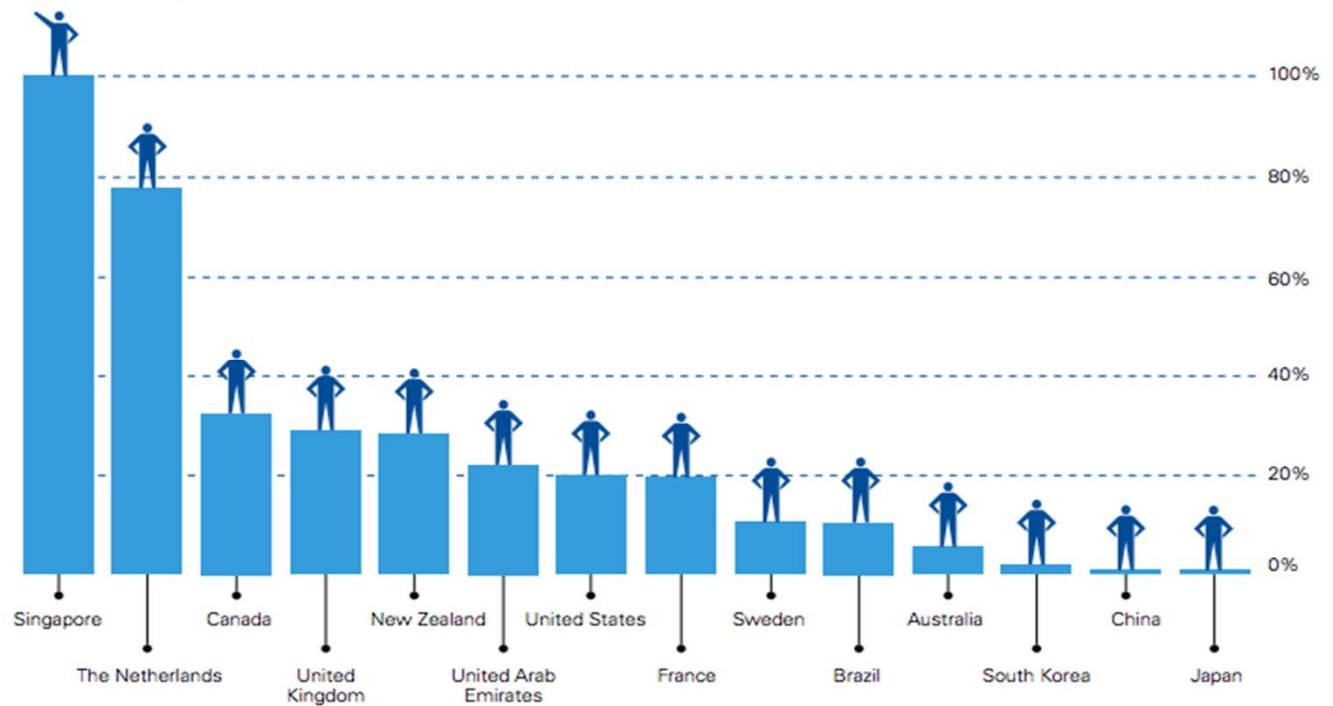
U.K.



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



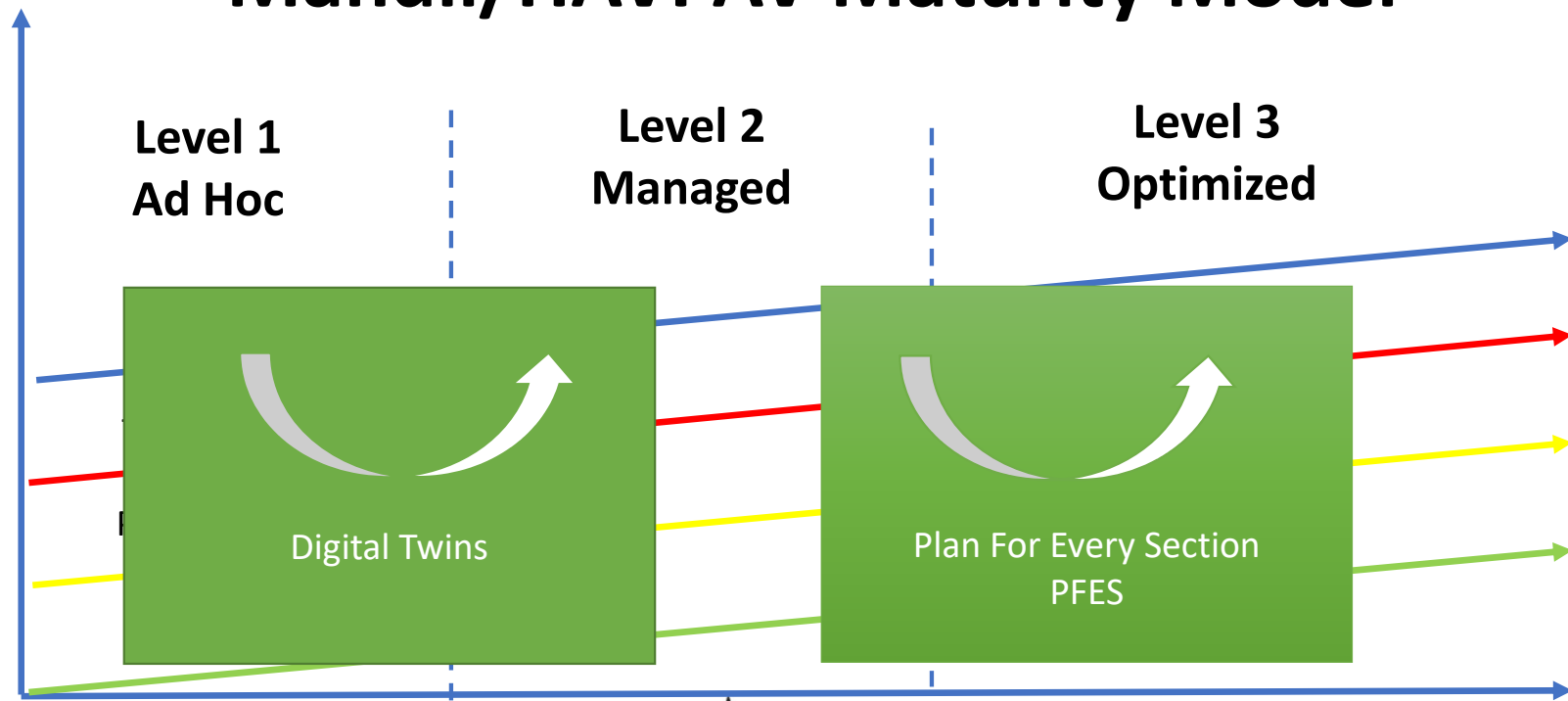
Conclusion

INVEST IN INFRASTRUCTURE



Conclusion

Mandli/HAVI AV Maturity Model



Conclusion

COLLABORATE



Thank you!

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