

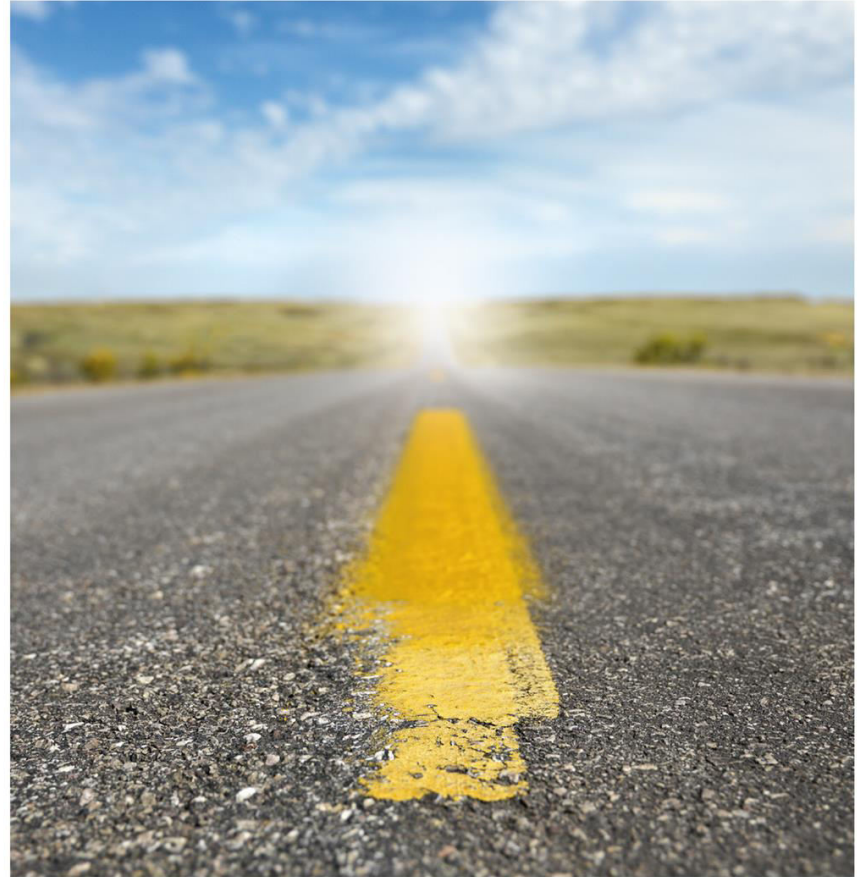
Injury Schemes Seminar

Road to Recovery



**Actuaries
Institute**

8-10 November 2015 • Hilton • Adelaide





The Future of Connected Vehicles: Connected Automation

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*This presentation has been prepared for the Actuaries Institute 2015
Injury Schemes Seminar.*

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Societal Challenges of Transportation

Safety

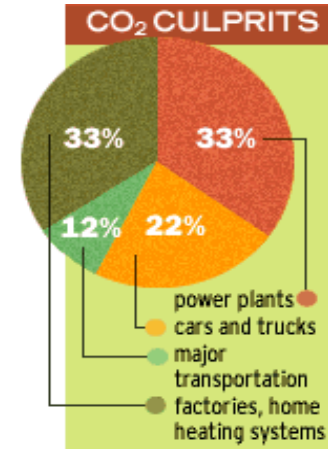
- EU: 38K deaths PA
- US: 37K deaths PA
- US: 5.8M accidents
- AU: 1600 deaths PA

Mobility

- US cost: \$87.2B PA
- EU cost: 1% GDP
- SYD: \$5.1B PA, rising to \$8.8B PA by 2020

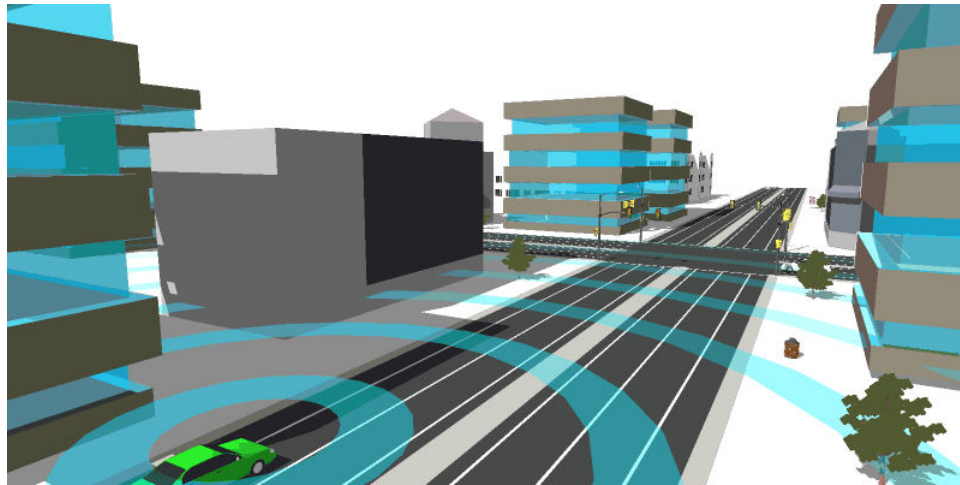
Environment

- Wasted fuel
- CO2 emissions
- Dependence on fossil fuels



Connectivity Can Solve These Problems

- Wireless communications providing connectivity:
 - Between vehicles (V2V)
 - Between vehicles and infrastructure (V2I)
 - Collectively: V2X
- Enabling:
 - 360° V2V awareness
 - Two way flow of V2I information
- The V2X Connected Car can:
 - Be safer (>50% crashes avoided)
 - Spend less time in traffic
 - Have less environmental impact



Automation Can Solve These Problems

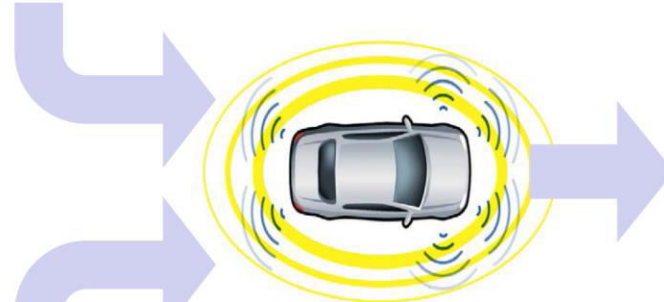
- Improving safety
 - Reduce and mitigate crashes
- Increasing mobility and accessibility
 - Expand capacity of roadway infrastructure
 - Enhance traffic flow dynamics
 - More personal mobility options for disabled and aging population
- Reducing energy use and emissions
 - Aerodynamic “drafting”
 - Improve traffic flow dynamics



Connected Automation

Autonomous Vehicle

Operates in isolation from other vehicles using internal sensors



Connected Automated Vehicle

Leverages autonomous and connected vehicle capabilities

Connected Vehicle

Communicates with nearby vehicles and infrastructure



...but connectivity is critical to achieving the greatest benefits

- USDOT



Incomplete Selection of Risk topics

- Expectations on Driver
- Human Factors in transition of mode
- Technical (mainly sensors)
 - Fog, Rain, Snow, Sun glare
 - positioning in general, map dependence
 - feature classification (e.g. police officer)
 - security
- Legislation
- Liability (e.g. Volvo and Google accepting)
- Business model assumptions (mobility as a service)
- Crash severity variation

Timeline: Two Camps

- Google (et al)
 - 2020
- Vehicle OEMs
 - Level 2+ Autonomy: today
lane keeping, adaptive cruise
 - V2X Connected: 2020 (GM 2017)
20+ applications: collision warnings etc
 - Full Autonomy: 2025 (Tesla 2020)



Thankyou

