



AUTOMOTIVE AUSTRALIA 2020

Technology Roadmapping in the Australian Automotive Industry

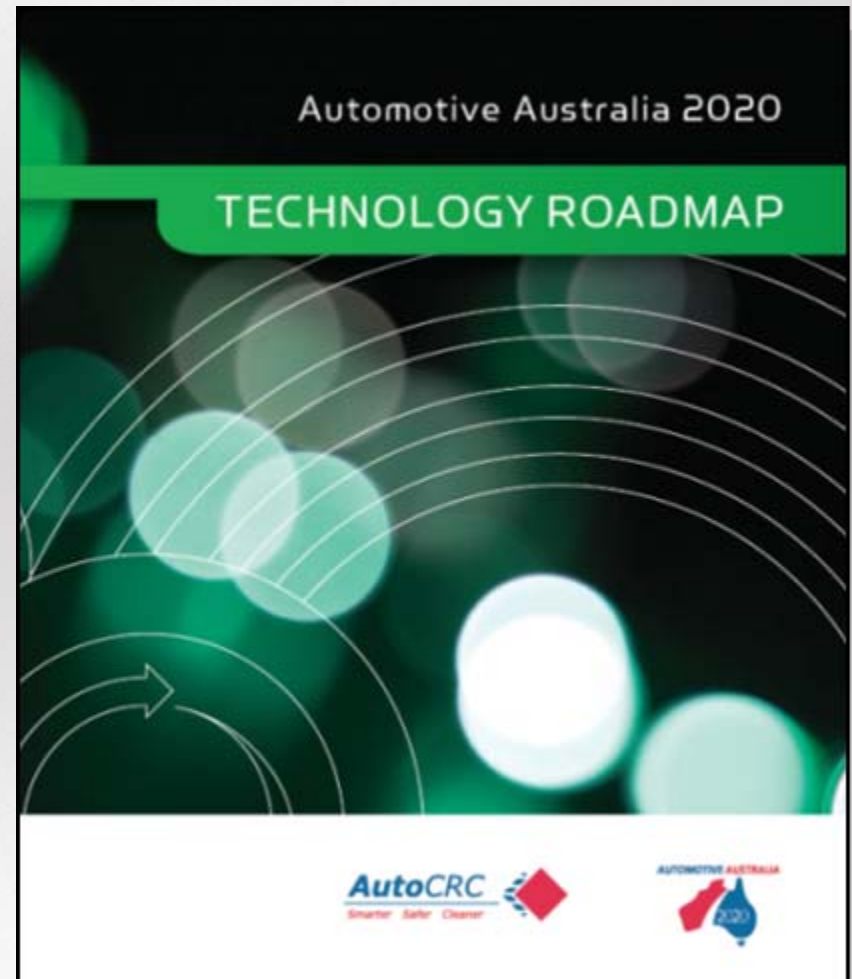
Tom Wood - Program Manager, ANU Edge
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Agenda

- Background
 - Process
- Engagement
 - Participation
- Outcomes
 - The Roadmap
 - Recommendations
- Impact





Automotive Australia 2020

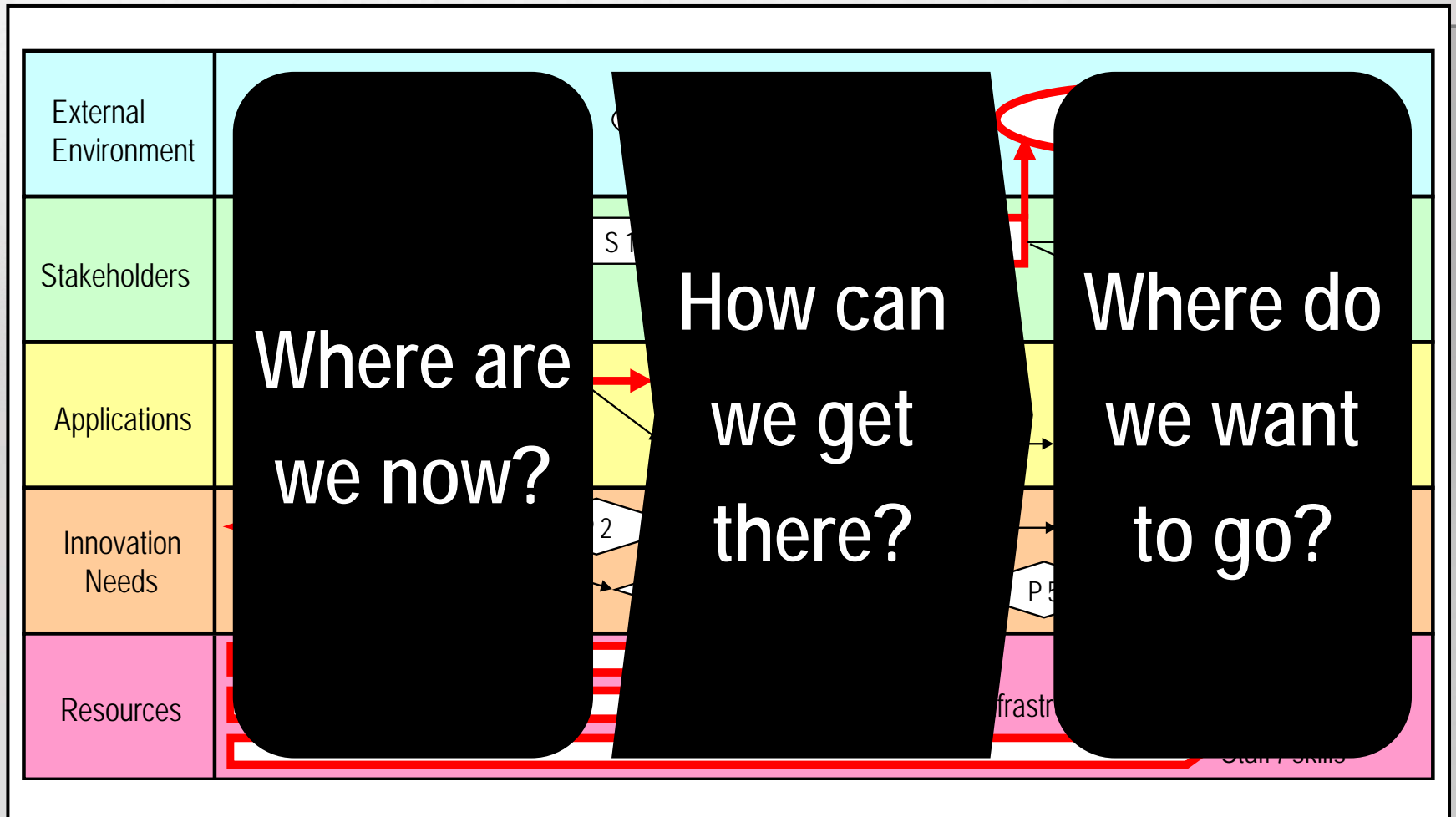
- Commissioned in 2009 by: AIIC, DIISR, Victorian Government
- Released in August 2010
- AutoCRC, ANU, CSIRO, Cambridge IfM

AUTOMOTIVE AUSTRALIA





The Roadmapping Process





Participatory Process - Networking



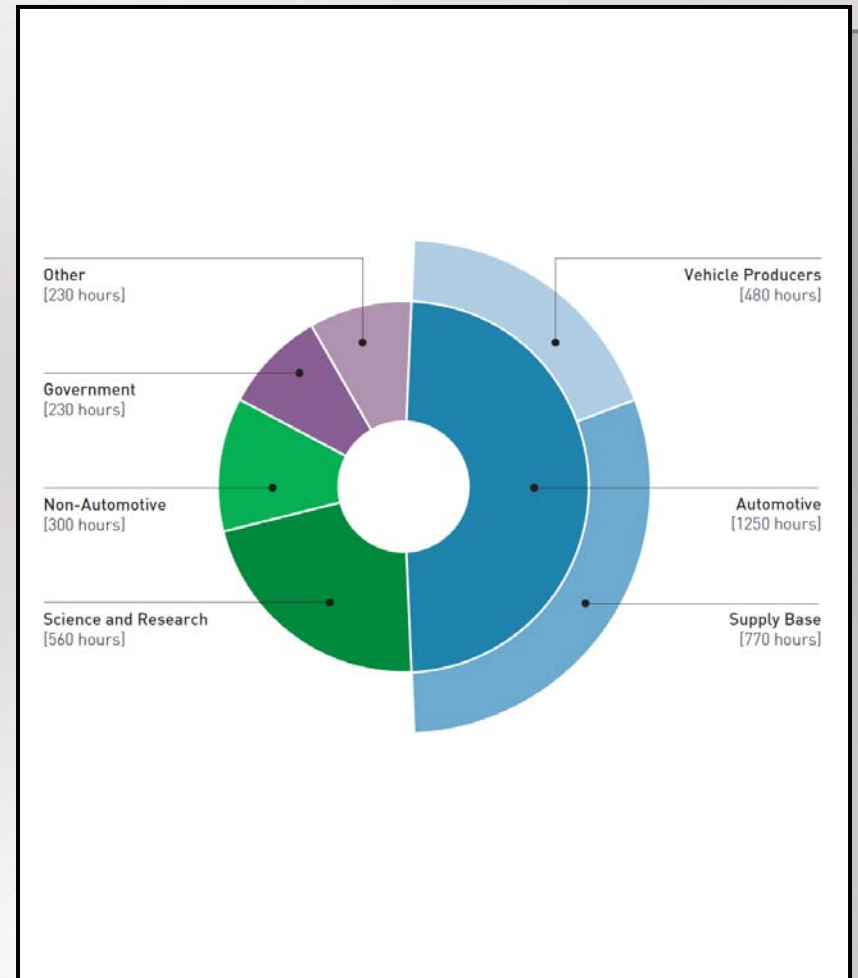
‘Strategic landscape’ activity enables sharing & capture of diverse perspectives across a broad scope, and identification of key ‘landmarks’ (issues & opportunities)

“The process of Roadmapping is often as valuable as the roadmaps themselves”



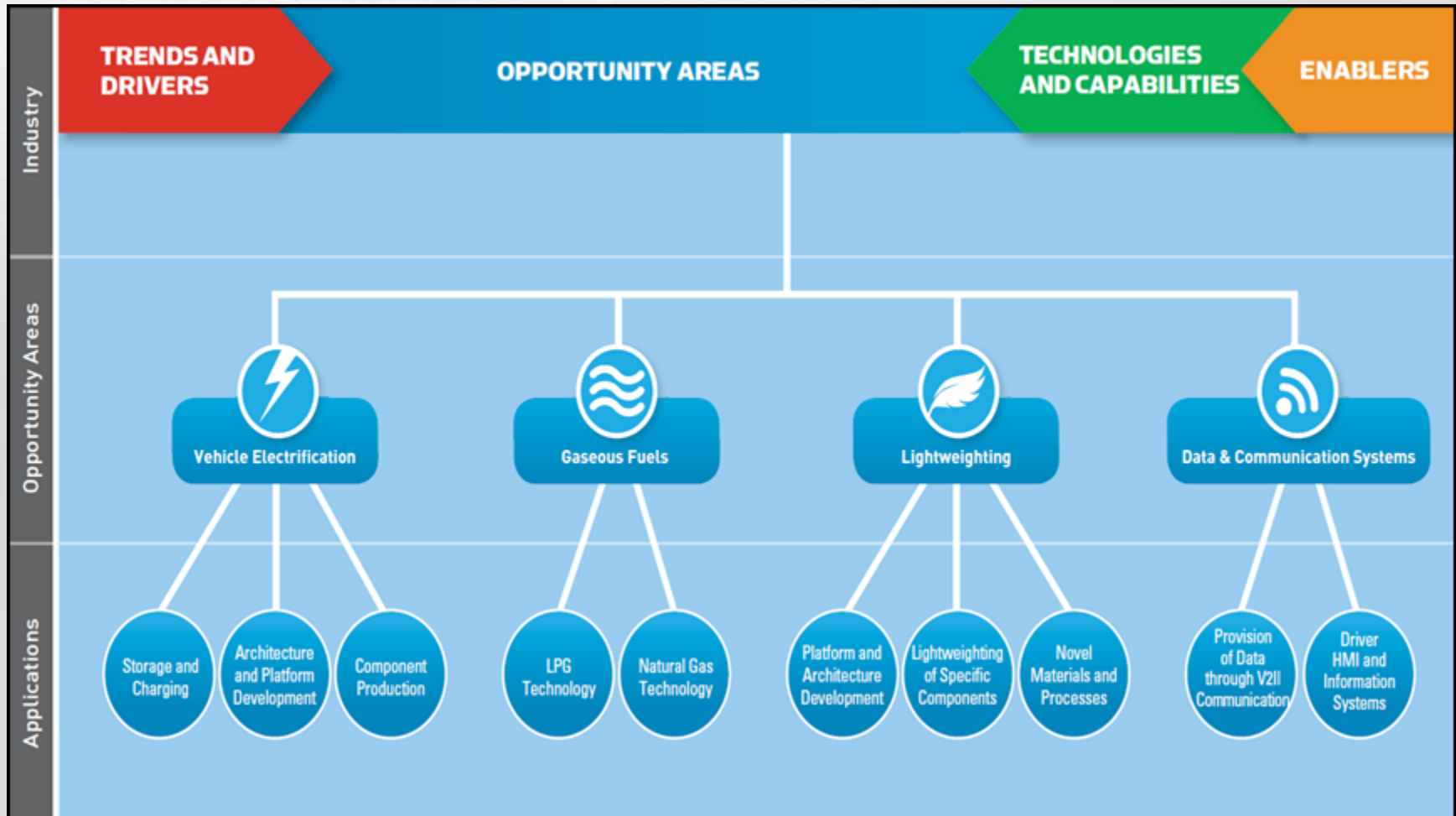
Industry Engagement

- 220 individuals
- 160 stakeholders
 - MVPs
 - Suppliers
 - Research
 - Government
 - Industry Bodies
- >2500 hours direct engagement





The AA2020 Roadmap





Outcomes & Recommendations

- 32 opportunities covering 4 priority areas
 - Gaseous Fuels, Electrification, Data & Communications, and Lightweighting
- 32 specific recommendations
- Workshop with industry leaders to begin implementation, take leadership



Opportunities

- **Vehicle Electrification**

- Supercapacitors for Electric Vehicles
- Design and Assembly of Power Electronics Modules
- High Energy Density Batteries (including Metal-Air)
- Low Cost, Robust and Efficient Electric Machines
- Modular, Standardised Battery Packs
- Modular Electric Vehicle Powertrains
- Expertise in Solutions for Electric Vehicle Architectures and Technologies
- Seamless Integrated Charging Infrastructure
- Software and Hardware for Electric Vehicle Specific Driver Interface
- Utility-Level Energy Grid Management System
- Hybrid and Electric Vehicle Production for Fleets and Taxis
- Market for Used Electric Vehicle Batteries
- Innovative Finance Models for Electric Vehicles

- **Data & Communications**

- Improved HMI and Driver Information
- Next Generation Car Navigation Systems
- Provision of Real-time Traffic Congestion and Incident Information
- Provision of Dynamic Speed Limit Information

- **Gaseous Fuels**

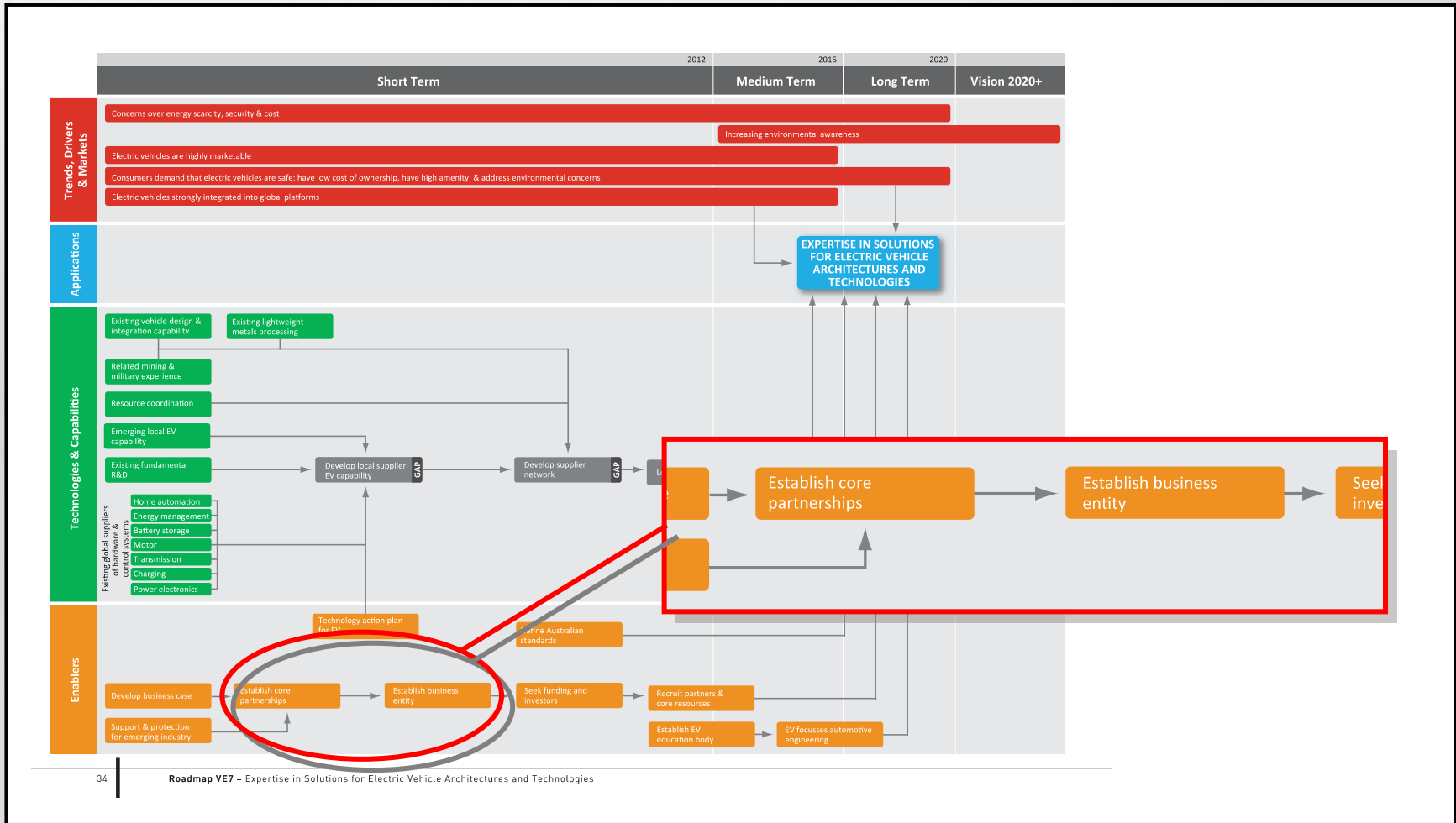
- Dedicated LPG System for Direct Injected Engines
- Fast Fill Solutions for LPG
- High Capacity, Low Cost, On-Vehicle Storage Tanks for CNG
- Increasing Availability of Natural Gas Refuelling
- Public Education Campaign
- Natural Gas Vehicle Technology
- Expansion of the LPG Retrofit Market

- **Lightweighting**

- Replacement of Steel Components with Aluminium, Titanium, Magnesium and Composites
- Lightweight, High Volume, Class-A Body and Door Panels
- Lightweight Road Wheels
- Vehicle Structure with 30% Weight Reduction and Improved Crash Performance
- Novel 3D Knitted Composite Applications for Interior Structure and Seats
- Materials and Processes for Advanced Recycling
- Lightweight Modular Vehicle Platform
- Energy Absorbing Foams and Adhesives



Detailed Opportunity Roadmaps





Recommendations

- 5 key areas based on world's best practice
 - Industry Collaboration
 - Government Action
 - Education & Training
 - Short-term Action Plan
 - Implementing the Roadmap



Roadmapping - 1 Year Later

- ANU Edge
 - Delivering strategic roadmapping and other knowledge services based on world-class research and practice at ANU
- On Track to 2040
 - Similar roadmapping exercise for the Australian rail supply sector





AA2020 - 1 Year Later

- Recognition
 - Press coverage; recognition and support from stakeholders
 - SAE nominations
 - AutoCRC
- Industry Impact
 - Reports of heavy use, reference
 - Real milestones being seen
 - EV Engineering



Thank You

AA2020: www.autocrc.com/2020.htm
ANU Edge: www.anuedge.com
OTT2040: visit the ANU Edge website for more information

QUESTIONS?

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