



**COLLISION
INDUSTRY
CONFERENCE**



Addressing Future ADAS Opportunities

Emerging Technologies

Co-chairs, Chuck Olsen
and Bob Augustine



Emerging Technologies Committee members

- Michael Quinn, AirPro Diagnostics
- Roy Schnepfer, Butlers Collision
- Mark Allen, Audi America
- Chris Caris, Campbell Marketing
- Tim Morgan, Spanesi Americas
- Jason Norman, Enterprise Holdings
- Sean Guthrie, Car Crafters
- Barry Dorn, Dorn's Body & Paint
- Dr. Mark L. Quarto, Quattro Tech
- Jake Rodenroth, Lucid
- Scott VanHulle, I-Car
- Jason "Buck" Zeise, LaMettry's Collision
- Gene Lopez, Seidner's Collision
- Donny Seyfer, NASTF
- Aaron Schulenburg, SCRS
- Kaleb Silver, Hunter Engineering
- Frank Terlep, Auto Techcelerators
- Jeff Brewer, Caliber Collision
- Dave Hobbs, Delphi Technologies
- Wayne Krause, Mitchell Collision
- Bud Center, I-Car
- Jeff Poole, I-Car
- Greg Peeters, CAR ADAS
- Todd Balan, CalPro ADAS
- Jack Rozint, Mitchell Collision
- Dirk Fuchs, I-Car
- Brian Plott, ETI
- Jason Bartanen, Collision Hub
- Michael Simon, Bosch
- Shaughn Kennedy, Vehicle Specialty Marled Underwriters
- Mike Muller, SEMA





Presented by: Special Guests

- **Jim Fish, New Hammer Ventures**
- **Chris Gardner, AASA**

Followed by Q&A Panel Discussion





History of J2534

How Industry Standards Evolve

1996

- ECM, PCM, VCM (Powertrain)
- Engine, Transmission, Transfer case
- ECU replacement
- Software updates (emissions compliance, bugs, driveability improvements)





History of J2534

How Industry Standards Evolve

2000



Deal with false MILs





History of J2534

How Industry Standards Evolve

\$16,000

2000



- OEM diagnostic tool was required to do reprogramming
- No distribution channel in place to get the software (other than GM)



History of J2534

How Industry Standards Evolve

2002



- SAE developed a specification, J2534-1
- Standardized programming interface to reflash **POWERTRAIN ECUs** in the aftermarket (J-box) using OBDII vehicle protocols (J1850VPW, J1850PWM, ISO9141-2, ISO14230, J2610, ISO15765-4)
- All MY 2004 vehicles sold in NA had to comply





History of J2534

How Industry Standards Evolve

2006-2015



- SAE developed a specification, **J2534-2**, which added additional vehicle protocols (GM UART, Honda Diag-H, etc)
- OEMs began to add additional ECU support (body, chassis ECUs)
- OEMs added support for diagnostics (full scan tool)





History of J2534

How Industry Standards Evolve

2018

- Massachusetts Right-2-Repair takes effect
- All OEMs have to support J2534 or ISO22900 for their diagnostic tools to sell vehicles in MA
- 49-State MOU



2008

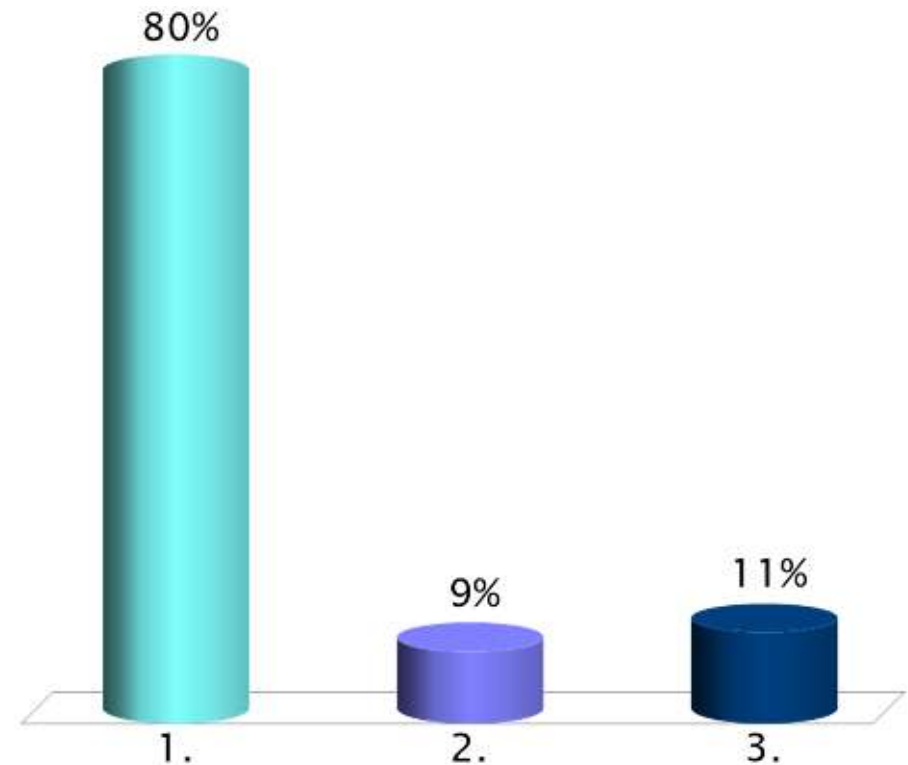


Audience Response Question: Do you think there should be ADAS Standards for Field Calibration?

1. Yes

2. No

3. Not Sure





ADAS Aftermarket Service Ecosystem

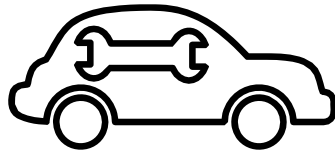
2030

The Coming Wave of
Aftermarket Opportunity

WHAT DID WE DO?



Students from
the University
of Michigan



350 Repair
facilities



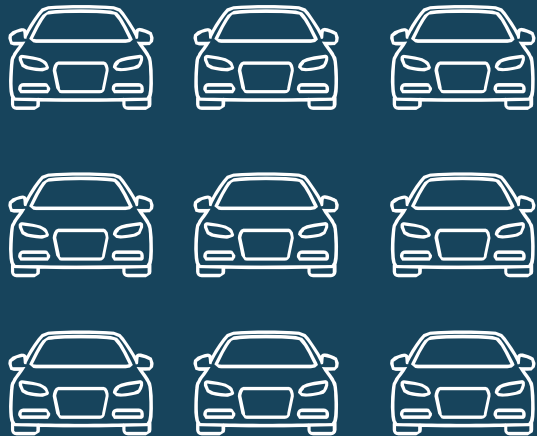
91 journals,
articles or
academic
papers



In person
focus group

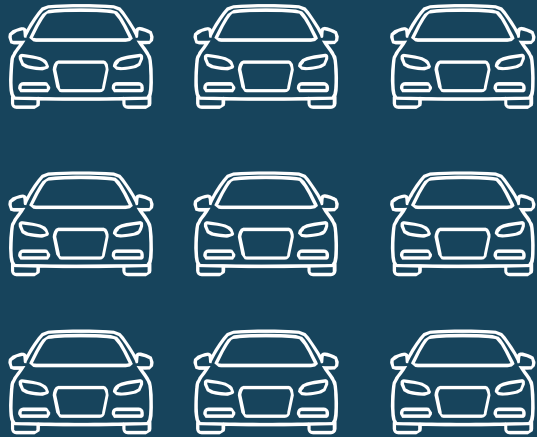


KEY FINDINGS



**>1M VEHICLES REQUIRED
ADAS SERVICE IN AN
AFTERMARKET SHOP IN
2021**

KEY FINDINGS

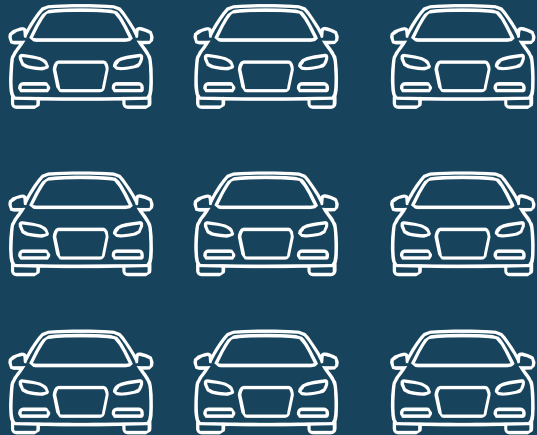


>1M VEHICLES REQUIRED
ADAS SERVICE IN AN
AFTERMARKET SHOP IN
2021



>90% OF ADAS WORK
COMING INTO MECHANICAL
SHOPS IS OUTSOURCED

KEY FINDINGS



**>1M VEHICLES REQUIRED
ADAS SERVICE IN AN
AFTERMARKET SHOP IN
2021**



**>90% OF ADAS WORK
COMING INTO MECHANICAL
SHOPS IS OUTSOURCED**



**ADAS PARTS AND
SERVICES WILL
EXPERIENCE >17% CAGR
THROUGH 2030**

DID YOU KNOW?



ADAS SYSTEMS WILL
LOWER CRASH RATES BY
20% IN 2030

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45% OF ADAS SYSTEMS
ARE DEACTIVATED BY THE
CONSUMER

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COLLISION SHOPS
OUTSOURCED \$177M
WORTH OF ADAS
CALIBRATION WORK

ADAS WORKS!



Reverse
Vision

-42%

Backing crashes

Automatic
Emergency
Braking

-46%

Rear end striking
crashes

Lane Keep
Assist

-20%

Lane change
collisions

J2534 STATUS

65%



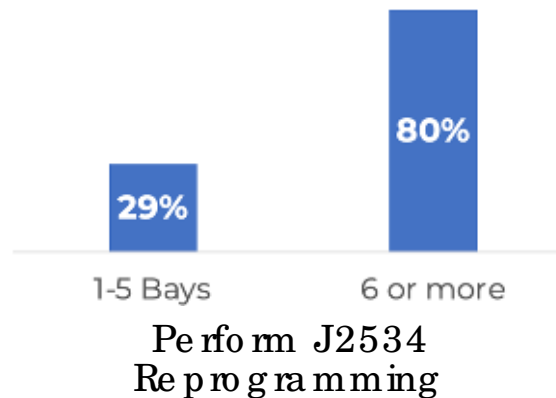
Mechanical shops
send Reprogramming
out

25%



Collision shops
capable of
Reprogramming a
vehicle

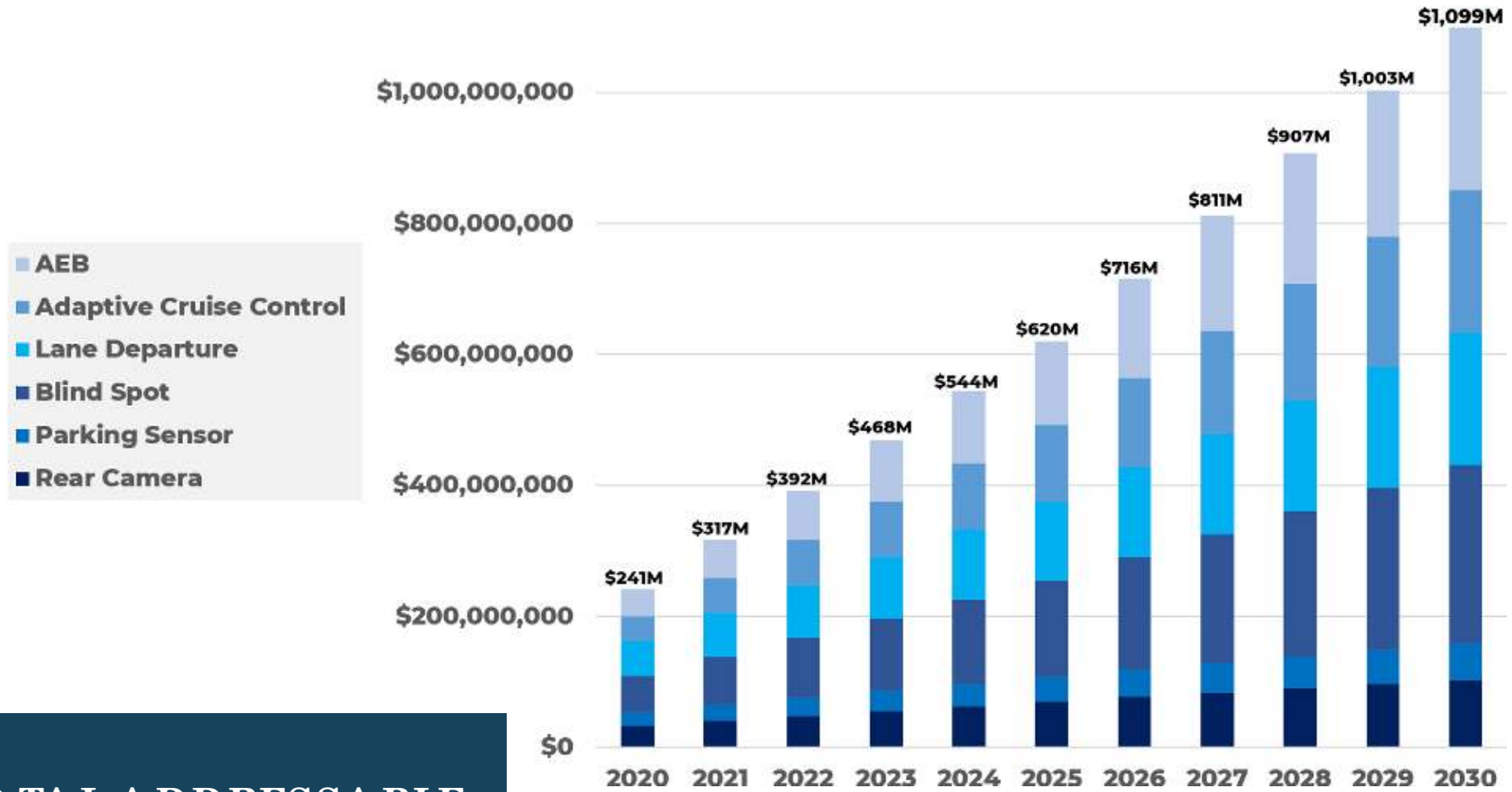
Mechanical Shops
capability heavily
correlated to shop size



\$425M

Reprogramming
Services STILL sent to
the Dealer

TO T A L A D D R E S S A B L E
M A R K E T - A D A S P A R T S



16.9% CAGR

ADAS CAPABILITIES

9/10



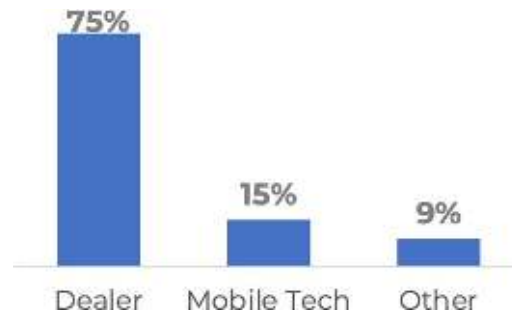
Mechanical shops
send ADAS to the
Dealer for repair

30%



Collision shops
capable of ADAS
component
replacement

ADAS service is following a path
similar to J2534 for
reprogramming - and is in the
very early stages



Where do you send vehicles that
require ADAS Services



ADAS CAPABILITIES

>75%

ADAS Services coming into
an Aftermarket collision
shop are not performed by
the shop

\$177M

ADAS Calibration
Services sent to the
Dealer



ADAS SERVICES



765K

ADAS Calibrations
projected to occur
in 2021

16%

CAGR through
2030

\$752M

in ADAS Calibration
projected to occur
in 2030

WHAT ARE THEY SAYING?



Too hard, complex

Every car has different processes. It's overwhelming to try and catch up.

- Arbor Motion

Hoops to jump through aren't worth the time

- Dan's Auto Repair

Sending to a dealer is just easier

- York Collision Center



No demand

Not our customer base, when we see a need for it, we will invest

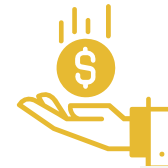
- Mallek's Service

We are not at that point yet, but we are preparing for it because we know it's coming on all of the new cars.

- Davis Automotive

Haven't found it necessary to service these yet

- Hoover Street Auto Repair



Too Expensive

Don't have space. Send it to another body shop.

- Kar Kraft Collision

Too expensive to acquire necessary hardware and software

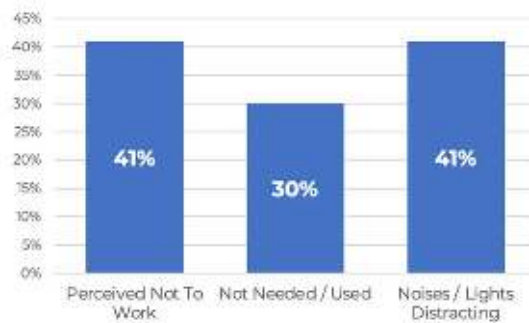
- Frank's Auto Reconditioning

Too expensive. Let me know if you find one that does because my Ford F-150 needs its windshield recalibrated and the dealer is too busy right now

- Affordable Automotive

CONSUMER USE

Consumer rationale for
deactivation of ADAS systems



45%

of ADAS systems
are deactivated



#1 - PROBLEM WORTH SOLVING



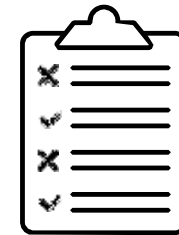
Problem #1 Cost of ADAS repairs

Cost of parts and equipment out of reach of most shops

- Only OEM parts available in many cases
- Non-standard calibration processes



**Aftermarket
alternatives
needed!**



**Standardized processes
increase AM participation**

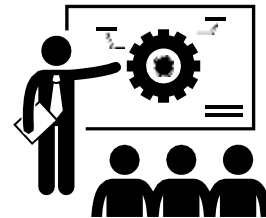


2 - PROBLEM WORTH SOLVING



Problem #2 Low
Shop Competency
in ADAS Services

- A new and intimidating technology
- Not enough volume to bring the services in house
 - Requires high end diagnostic skillset to properly service



Training, training, training

3 - PROBLEM WORTH SOLVING



Problem #3 Consumer usage of ADAS

Real life applications of ADAS tech is potentially troubling

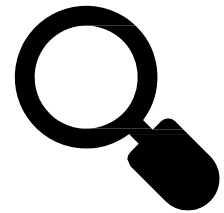
- ADAS systems being deactivated
- ADAS usage is causing drivers to drive in a less safe manner



Inform,
educate



Protect



Verify



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Panel Discussion

Addressing Future ADAS
Opportunities





Panelists

- **Chuck Olsen, AirPro Diagnostics**
- **Bob Augustine, Opus IVS**
- **Jim Fish, New Hammer Ventures**
- **Chris Gardner, AASA**
- **Greg Potter, ETI**
- **Mike Muller, SEMA Garage Detroit**





THANK YOU

