



# 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)



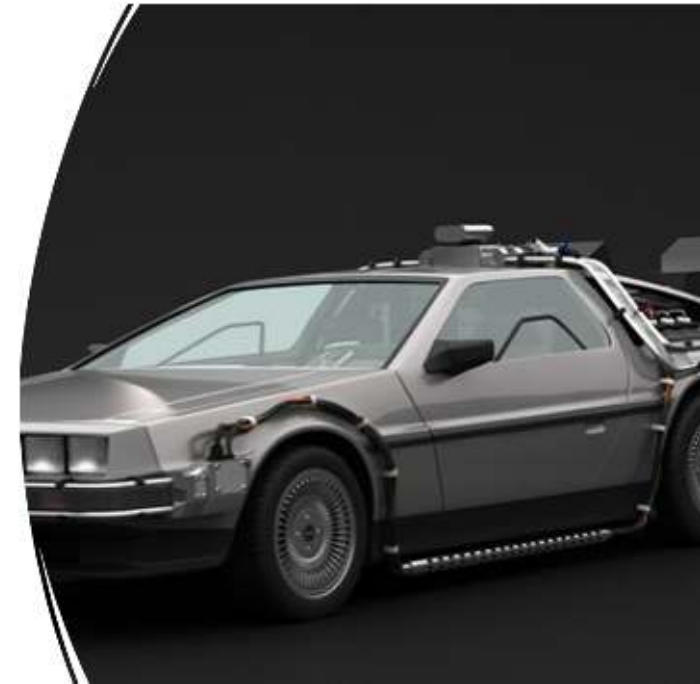
# History of J2534

## 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

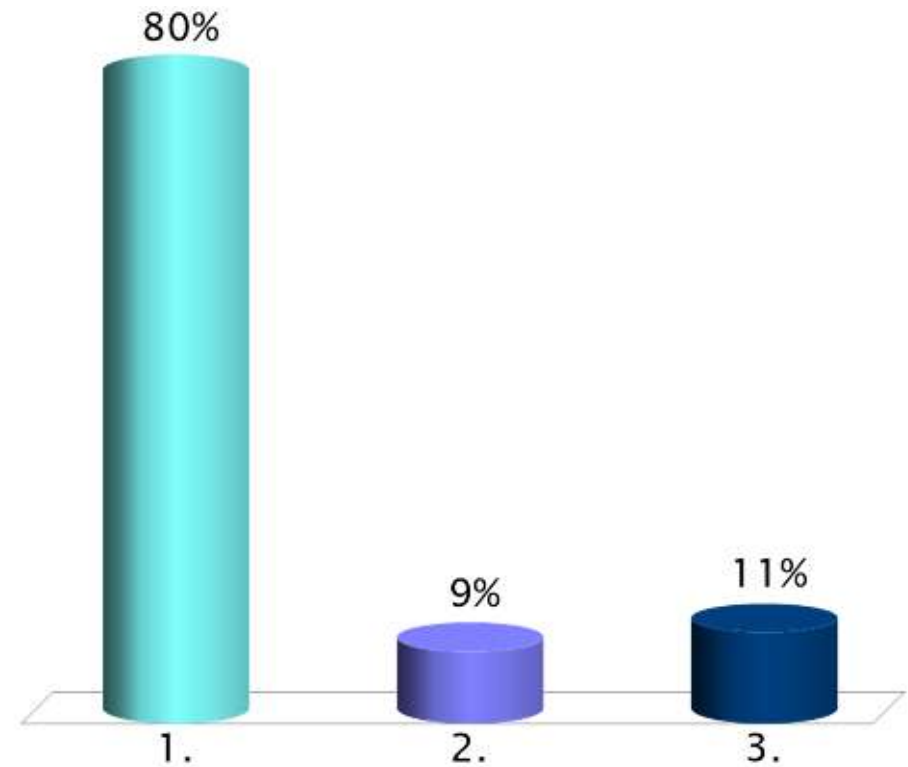


# Audience Response Question: Do you think there should be ADAS Standards for Field Calibration?

**1. Yes**

**2. No**

**3. Not Sure**





# ADAS Aftermarket Service Ecosystem

# 2030

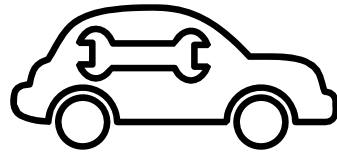
The Coming Wave of  
Aftermarket Opportunity

# WHAT DID WE DO?

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Students from  
the University  
of Michigan



350 Repair  
facilities



91 journals,  
articles or  
academic  
papers



In person  
focus group



# KEY FINDINGS

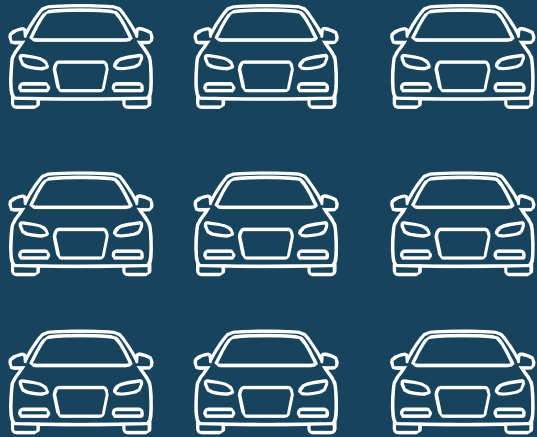
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**>1M VEHICLES REQUIRED  
ADAS SERVICE IN AN  
AFTERMARKET SHOP IN  
2021**

# KEY FINDINGS

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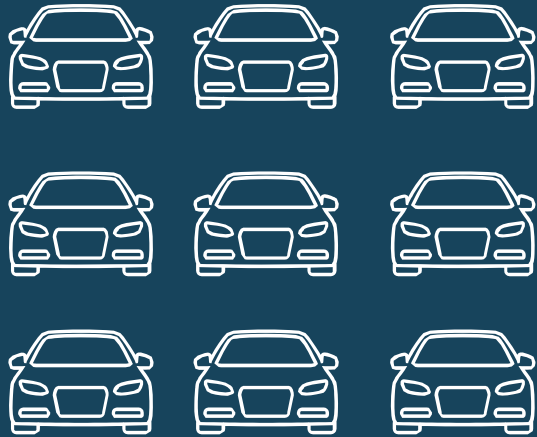
**>1M VEHICLES REQUIRED  
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2021**



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

# KEY FINDINGS

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**>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?

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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!

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Reverse  
Vision

**-42%**

Backing crashes

Automatic  
Emergency  
Braking

**-46%**

Rear end striking  
crashes

Lane Keep  
Assist

**-20%**

Lane change  
collisions

# J2534 STATUS

65%



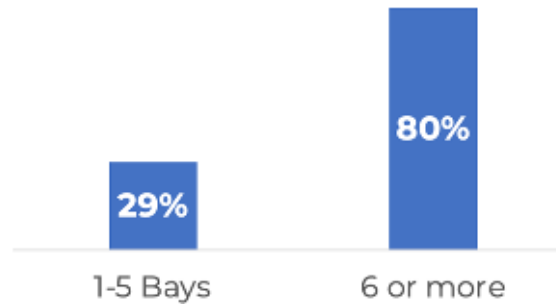
Mechanical shops  
send Reprogramming  
out

25%



Collision shops  
capable of  
Reprogramming a  
vehicle

Mechanical Shops  
capability heavily  
correlated to shop size



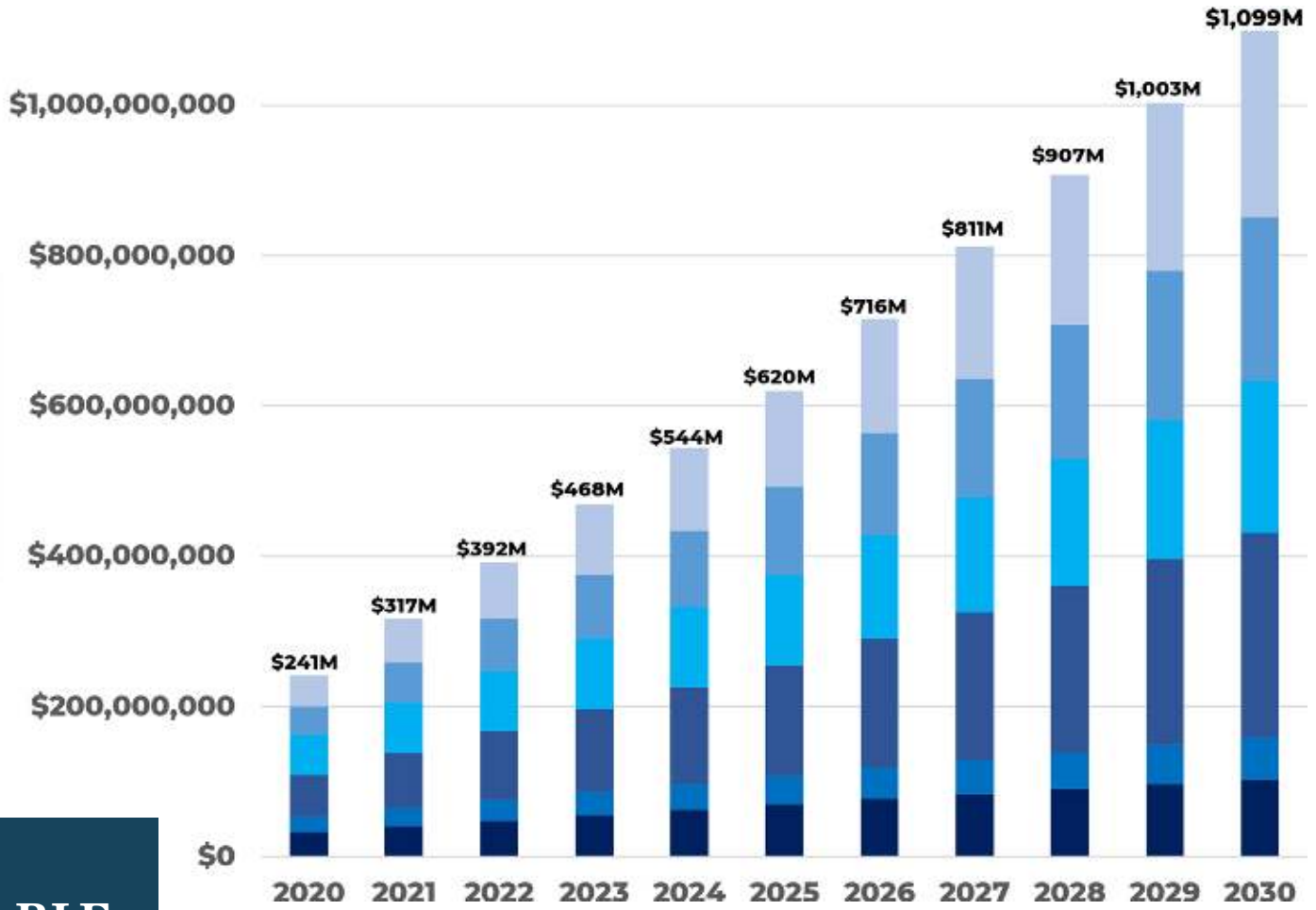
Perform J2534  
Reprogramming

**\$425M**

Reprogramming  
Services STILL sent to  
the Dealer

**TO TA 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**

- AEB
- Adaptive Cruise Control
- Lane Departure
- Blind Spot
- Parking Sensor
- Rear Camera



**16.9% CAGR**

# ADAS CAPABILITIES

9/10



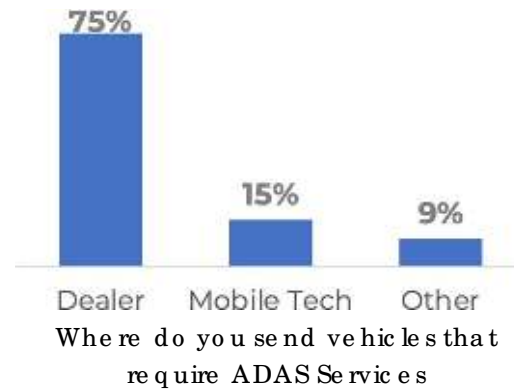
Mechanical shops send ADAS to the Dealer for repair

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



# ADAS CAPABILITIES

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**>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

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**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

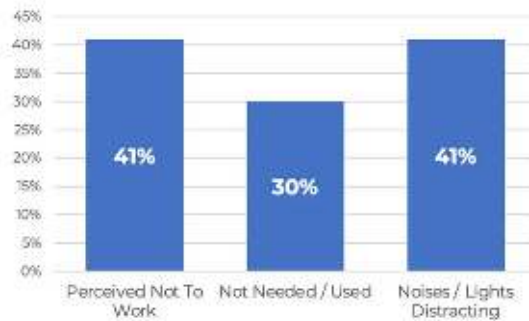
Too expensive. Let me know if you find one that does because my Ford F-150 needs its windshield recalibrated and the dealer is too busy right now

- Affordable Automotive

# CONSUMER USE

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Consumer rationale for deactivation of ADAS systems



**45%**

of ADAS systems  
are deactivated





# # 1 - PROBLEM WORTH SOLVING



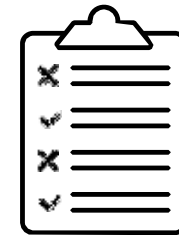
Problem #1 Cost  
of ADAS repairs

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**

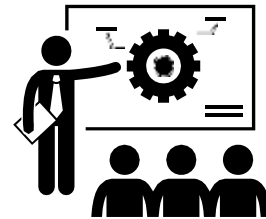


# # 2 - PROBLEM WORTH SOLVING



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**

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# # 3 - PROBLEM WORTH SOLVING



Problem #3  
Consumer usage  
of ADAS

Real life applications of ADAS tech is potentially troubling

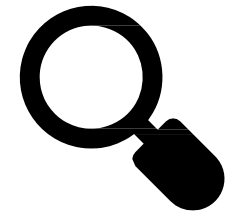
- ADAS systems being deactivated
- ADAS usage is causing drivers to drive in a less safe manner



Inform,  
educate



Protect



Verify





**COLLISION  
INDUSTRY  
CONFERENCE**



# 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**

