

2021
embedded
VISION
summit®
VIRTUAL | MAY 25-28

Automotive Vision Systems – What’s Growing, What’s Not, and Why?

Ian Riches, VP – Global Automotive Practice
Strategy Analytics
May 25, 2021



STRATEGY ANALYTICS

Celebrating 25 Years of Insights

Strategy Analytics 1-Slide Overview

B2B & B2C Research Capabilities – Syndicated & Custom



Understand your customer

Business opportunities abound. But which ones are right for you and your customers? Which will give you the advantage?



Optimize your user experience

Perfect your product to give your users the best experience and help you increase dominance of the market you're in.



Analyze the market

Understand the size of the opportunity and where your product fits using our unrivalled knowledge and world class data analysis techniques.



Explore your future

Working with us will focus you. With our insight and forecasting expertise you'll make confident strategic decisions that drive success.

Deep Automotive Expertise – Five Research Teams



Infotainment & Telematics



Powertrain, Body, Chassis & Safety



Autonomous Vehicles



In-Vehicle UX



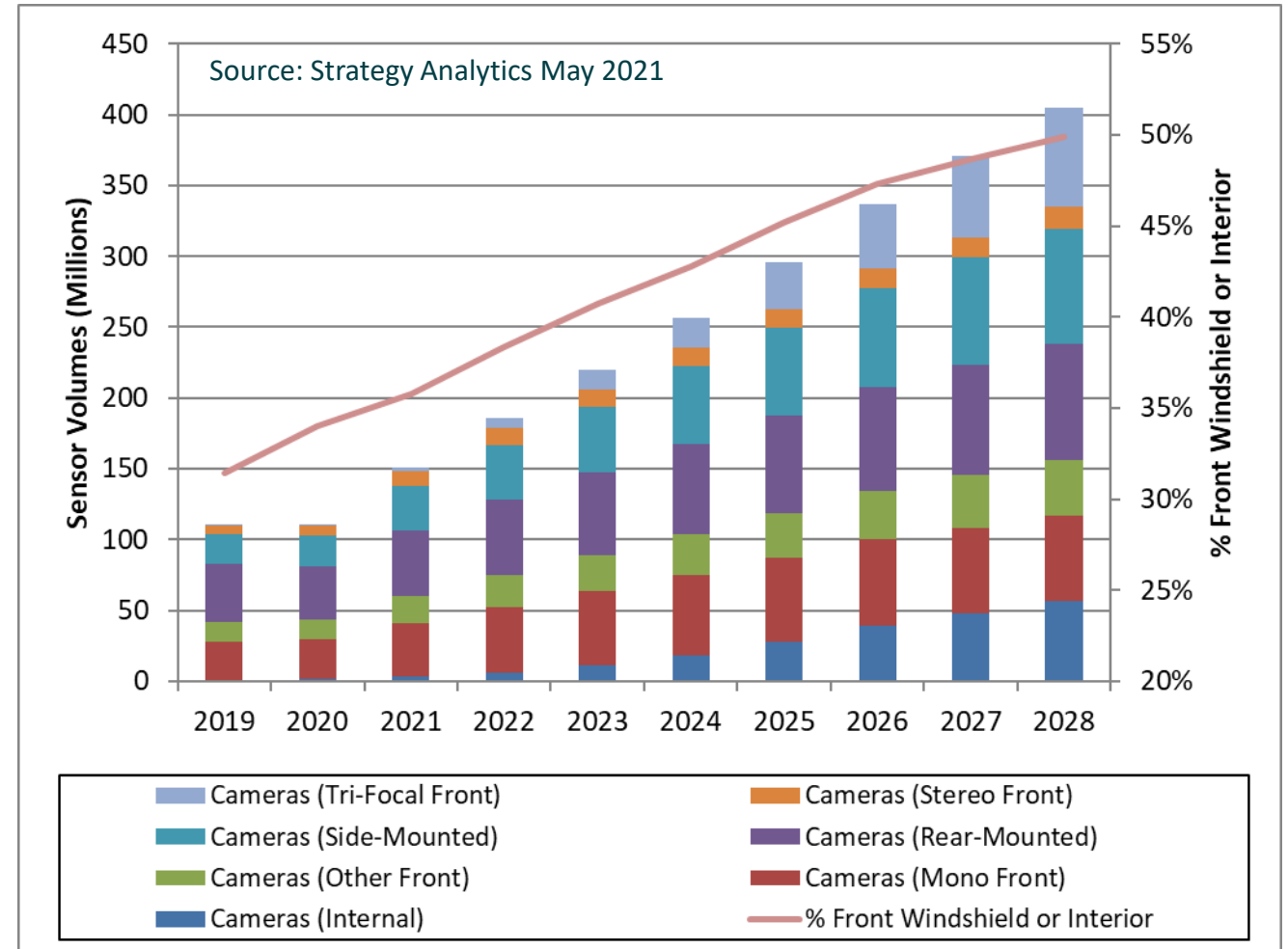
CONNECTED MOBILITY



What's Growing for Automotive Vision Systems?

Light-Duty Automotive Camera Volumes are Growing!

- **Fastest growth is in internal cameras**
- **Growth in stereo remains uncertain**
 - Some feedback from T1s that they favour Tri-focal plus other sensor type for distance information, or more advanced mono
- **Percentage of cameras used in windshield and interior is rising**
 - These have the greatest image processing requirements



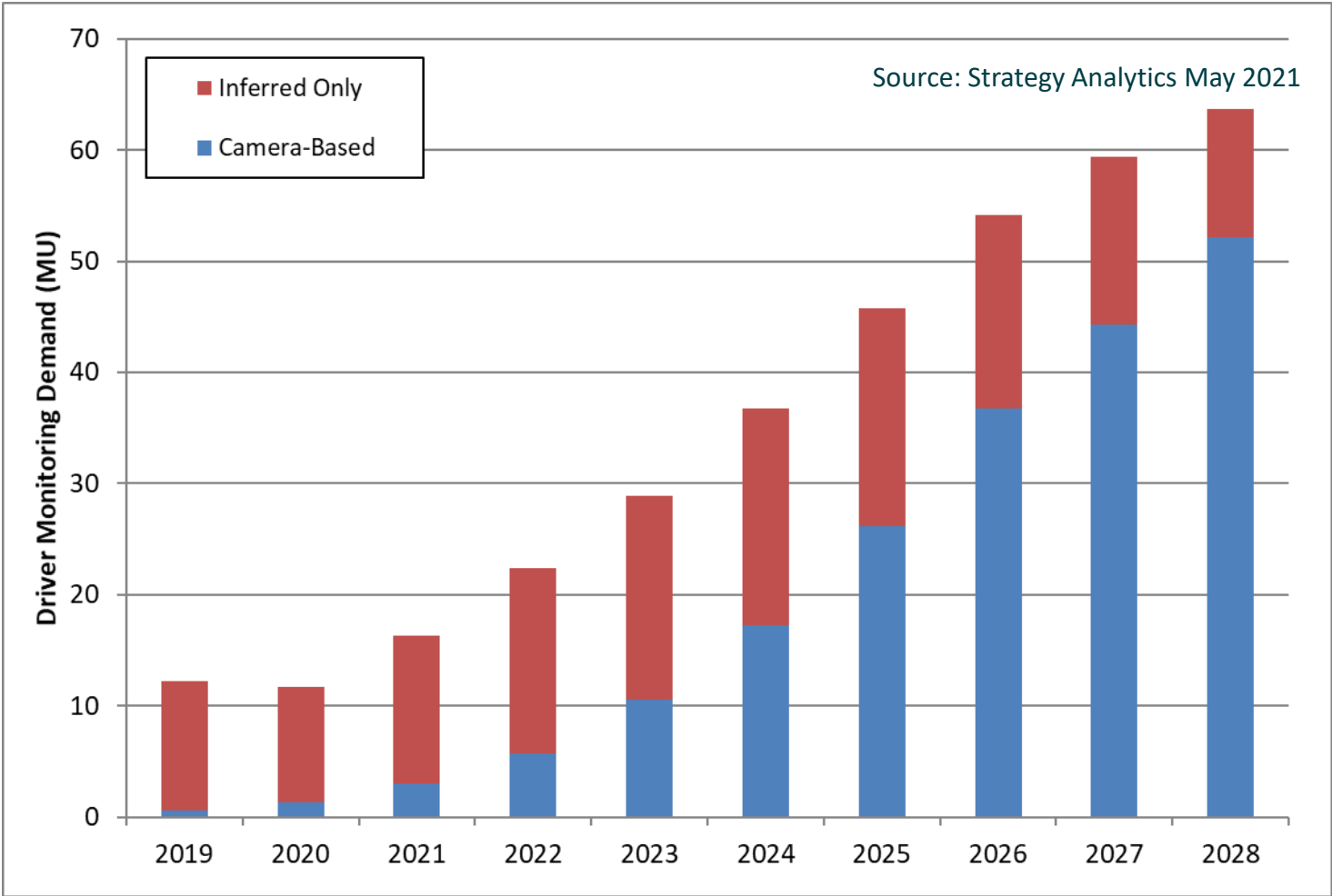
Note: Stereo camera counted as 2x cameras. Trifocal camera counted as 3x cameras

Thoughts on Driver Monitoring

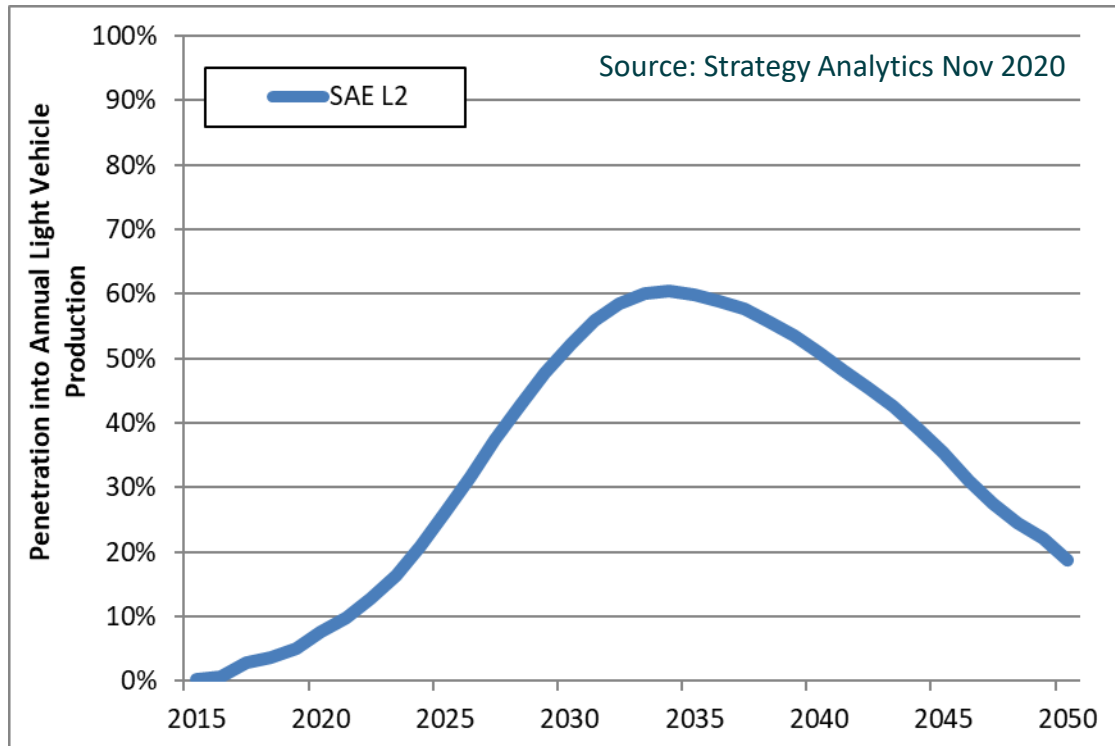
Camera-based solutions forecast to deploy rapidly starting now

Legislative / NCAP interest growing...

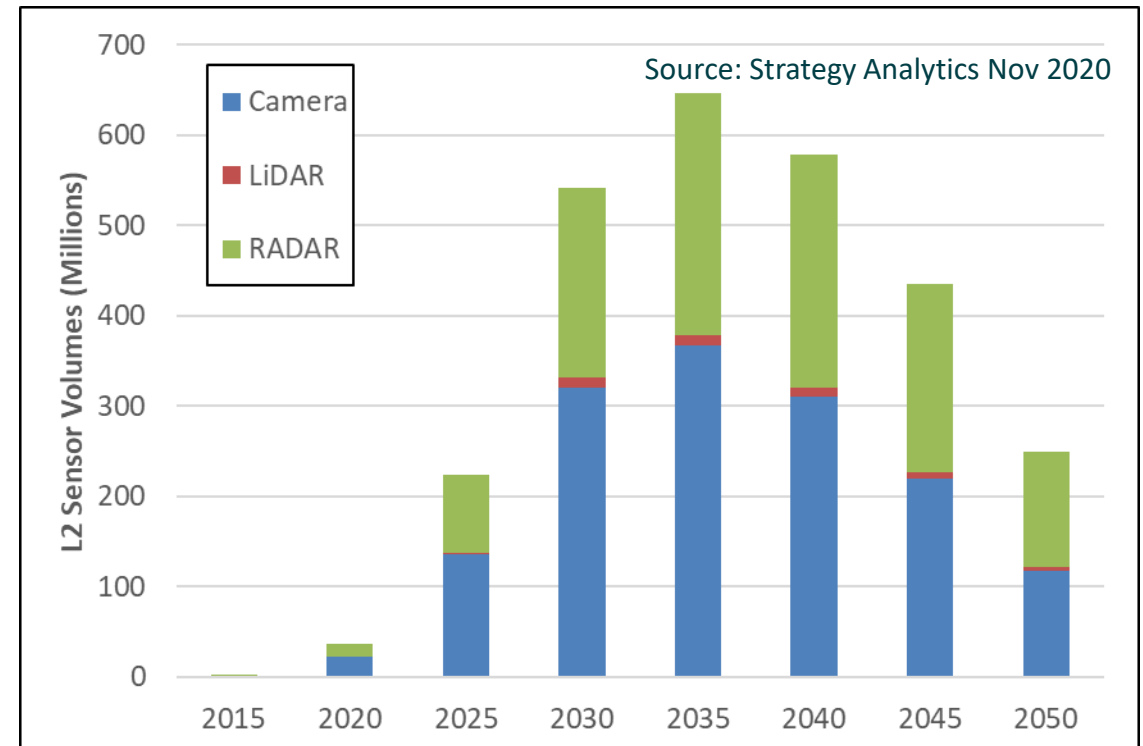
Integration trends will limit market opportunities



L2 Automation to See Rapid Growth



- **L2 could hit a penetration rate of around 25% by 2025**



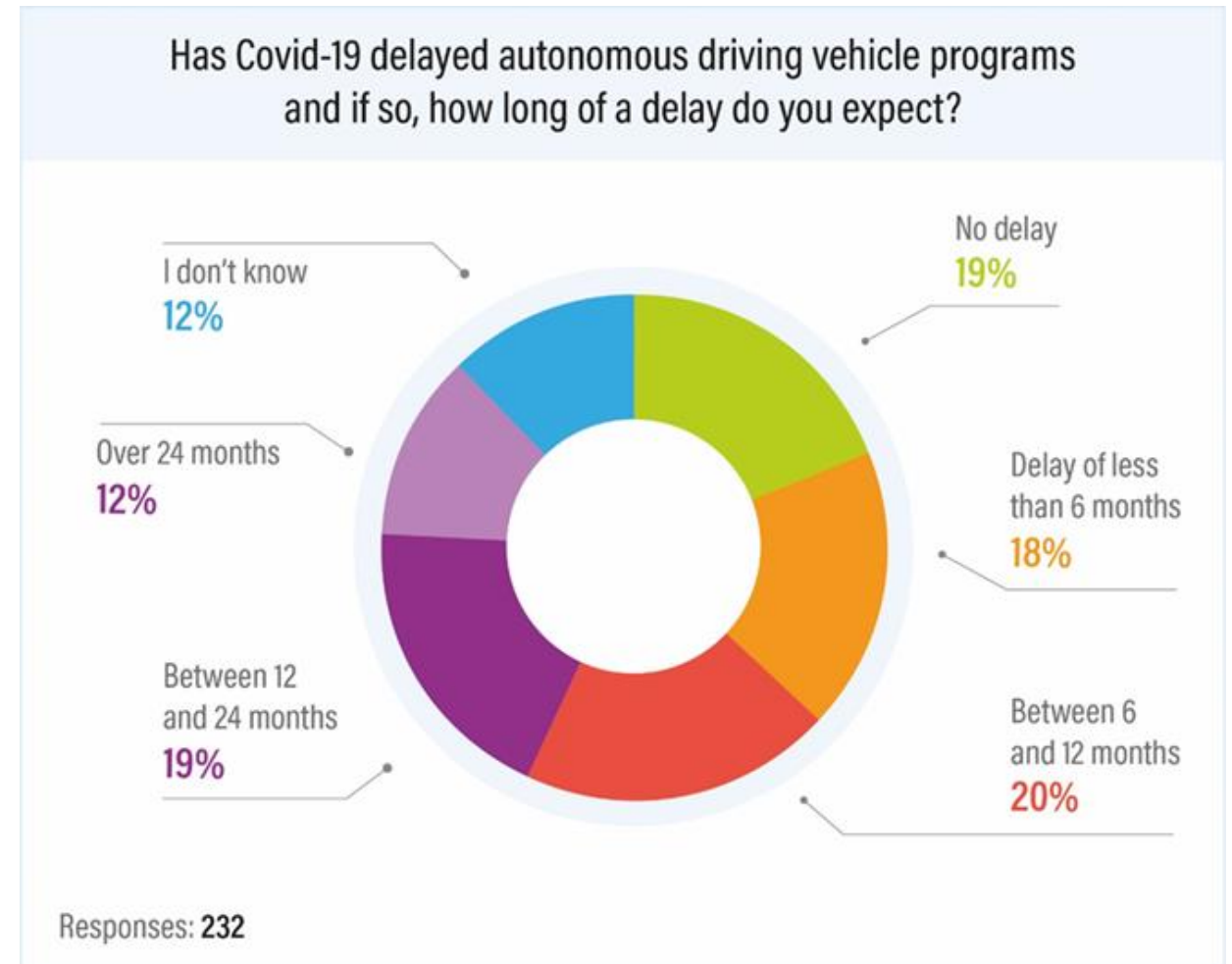
- **Cameras to be most numerous sensor type of the “Big three”**
- **LiDAR role at L2 still uncertain...**



What's Not Growing? (for now...)

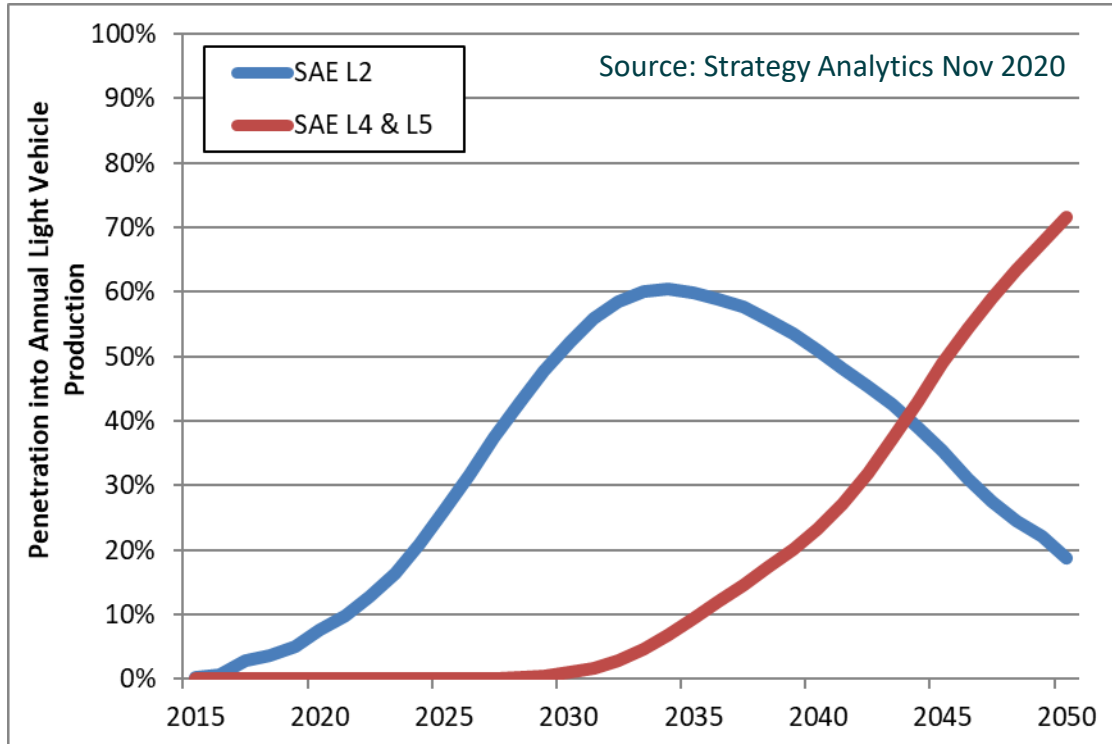
AV Programs Have Been Hit by COVID-19

- Only 19% of respondents saw no delays to AV programs; Over 30% saw delays of at least one year
- In a [report](#) by Redaktions Netzwerk Deutschland, Mercedes said that it is withdrawing from the autonomous driving race.
 - "We don't compete in any race that we can no longer win"
- This doesn't mean everyone is delaying...

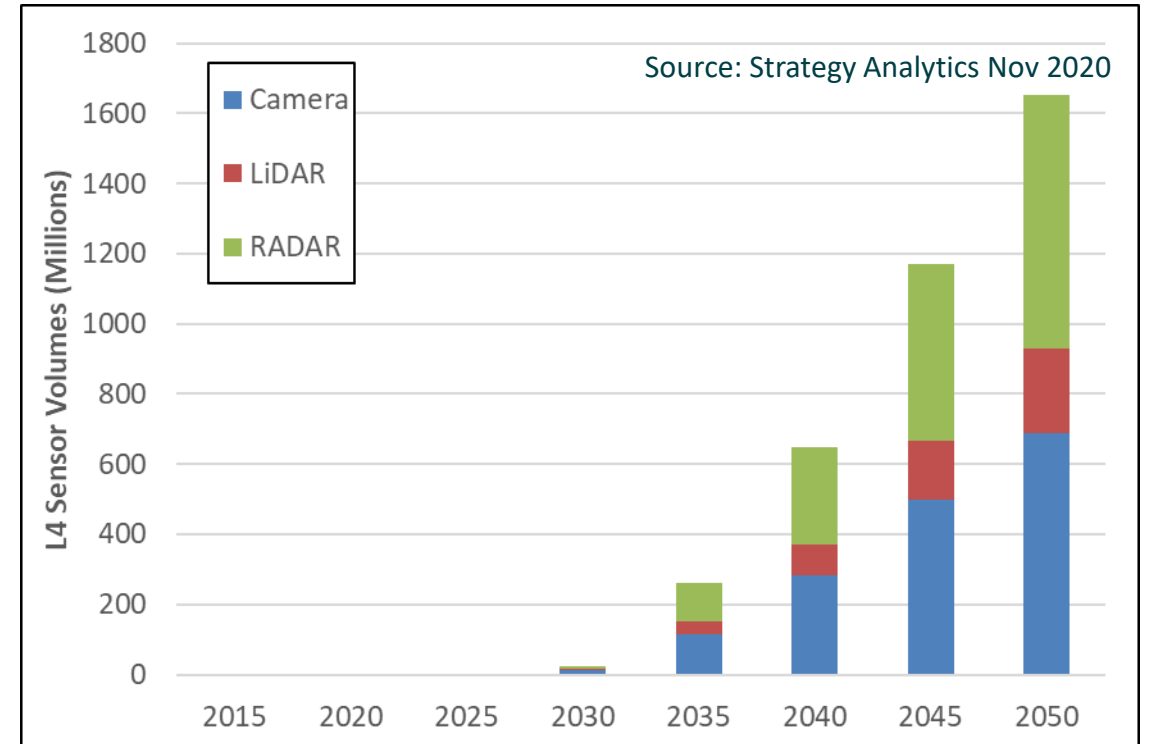


Source: [The 2020 Automotive Software Survey](#), by Aurora Labs and Strategy Analytics

L4 Automation to Only See Volume Post-2030



- **L2 could hit a penetration rate of around 25% by 2025**



- **Cameras still have huge role to play at L4**
- **LiDAR role at L4 much bigger**

Not all Interior Camera Use Cases are Equal!

- **The OEM challenge – how to monetize the internal camera?**



Source: Seeing Machines

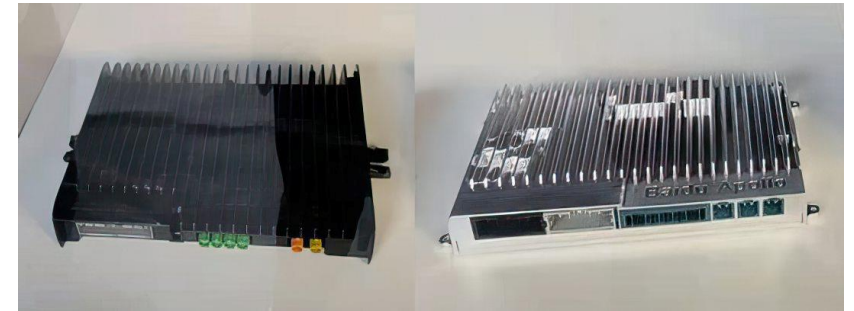
- **Driver ID & Personalization?**
- **Health Analysis / Monitoring?**
- **Emotion Analysis?**
- **Etc. Etc...**

- **Strategy Analytics check list**
 - Does the function have direct relevance to the driving task or to the journey being undertaken?
 - Do any existing solutions on mobile devices have limitations that you can overcome?

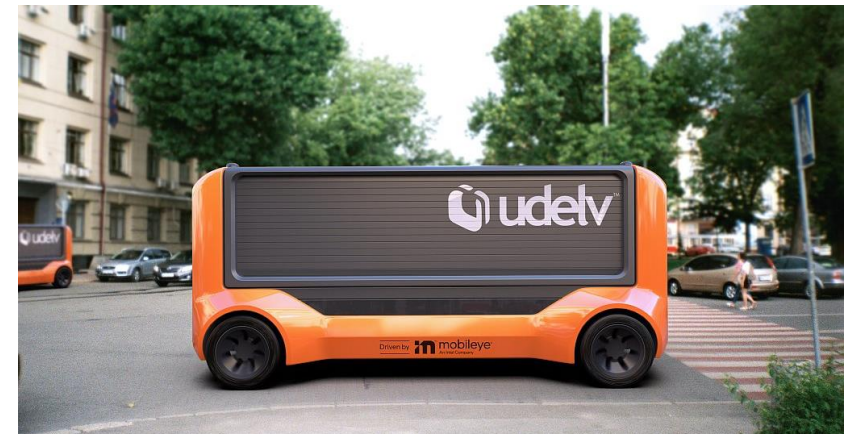


Auto Industry Structural Changes

- A combination of global factors is accelerating the formation of two global auto ecosystems: China and Rest-of-World
 - This is especially the case for ADAS/AV
 - Current-gen Chinese products have often sourced from US/global vendors. Strategy Analytics sees huge pressure for next-gen Chinese solutions to use Chinese technology
 - Some signs of the reverse happening
 - E.g. Udelv switching from Baidu to Mobileye

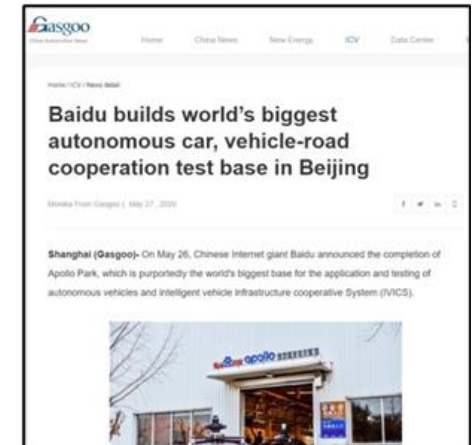
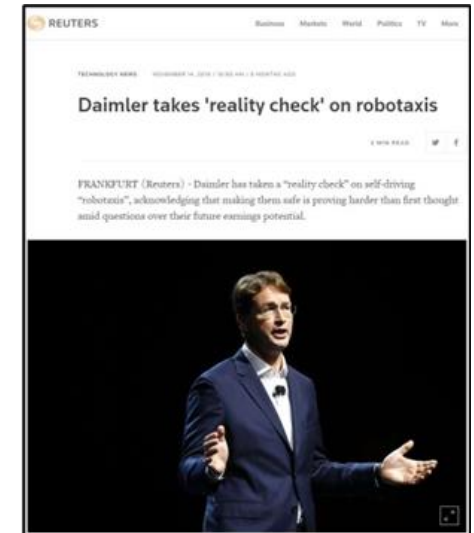
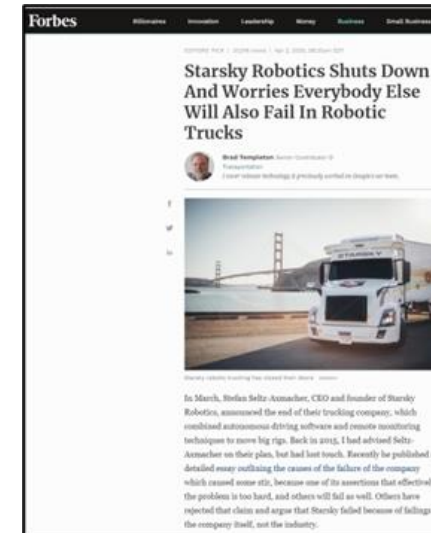


Baidu Apollo Computing Units (Source: Strategy Analytics)



Udelv Transporter (Source: Mobileye)

- Strong signs of AV “reality” breaking out at many companies, even before COVID-19
- Expect many more JVs / mergers / acquisitions and re-focusings – especially when it comes to monetizing AV development for ADAS
 - E.g. Volvo / Zenuity / Veoneer
 - Amazon / Zoox
- COVID-19 and electrification have put severe pressure on ADAS / Autonomous investment ...But big tech firms still have money...





Conclusions

- **Automotive Cameras will see strong growth**
 - Over 3.7 cameras per car average in 2028
 - Internal cameras seeing some of the fastest growth
 - L2-type automated driving will also be a big camera user
- **L4 Automation still >2030 in volume**
- **Beware of some camera use-cases**
 - How relevant is it to being in a car?
 - Does a personal device do it better?
- **Auto industry structure is changing**
 - Correct China strategy is vital!
 - The more the vehicle looks like a “phone on wheels” the more challenging it is for some incumbents
 - Choose your partners carefully!



Any Questions?



Ian Riches
VP – Global Automotive Practice
iriches@strategyanalytics.com

Richard Robinson
Director – Automotive Infotainment & Telematics
rrobinson@strategyanalytics.com

Mark Fitzgerald
Director – Autonomous Vehicle Service
mfitzgerald@strategyanalytics.com

Asif Anwar
Director – Powertrain, Body, Chassis & Safety
aanwar@strategyanalytics.com

Roger Lanctot
Director – Automotive Connected Mobility
rlanctot@strategyanalytics.com

Chris Schreiner
Director – UX Syndicated Research
cshreiner@strategyanalytics.com

Free Resources

The 2020 Automotive Software Survey, brought to you by Aurora Labs and Strategy Analytics*

<https://www.strategyanalytics.com/access-services/automotive/autonomous-vehicles/reports/report-detail/the-2020-automotive-software-survey>

Automotive Observations from the Inaugural All-digital CES 2021

<https://www.strategyanalytics.com/strategy-analytics/blogs/automotive/powertrain-body-chassis-safety/powertrain-body-chassis-and-safety/2021/01/19/automotive-observations-from-the-inaugural-all-digital-ces-2021>

Tesla: The Eyes Have It

<https://www.strategyanalytics.com/strategy-analytics/blogs/automotive/autonomous-vehicles/autonomous-vehicles/2020/12/07/tesla-the-eyes-have-it>

* Free registration required to download

Resources for Strategy Analytics Clients

B2B ADAS/Autonomous Forecasts & Databases

<https://www.strategyanalytics.com/access-services/automotive/autonomous-vehicles/market-data>

B2B ADAS / Autonomous Qualitative Analysis

<https://www.strategyanalytics.com/access-services/automotive/autonomous-vehicles/reports>

Automotive Consumer UX Research

<https://www.strategyanalytics.com/access-services/automotive/in-vehicle-ux/reports/>

