Autoliv

Road to Success

Henrik Kaar Director IR
Salah Hadi Global Director Vision

February 22, 2018

Autoliv

Safe Harbor Statement*

This presentation contains statements that are not historical facts but rather forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include those that address activities, events or developments that Autoliv, Inc. or its management believes or anticipates may occur in the future. All forward-looking statements, including without limitation, statements related to the Company's strategic review of its operating structure or the terms, timing or structure of any such transaction as a result of such review, if any; the outlook for Passive Safety and Electronics as separate businesses; statements related to the future performance of the Company or of any such businesses if any such transaction is completed; other targets regarding the Company's performance as a single entity; management's examination of historical operating trends and data, as well as estimates of future sales, operating margin, cash flow, effective tax rate or other future operating performance or financial results, are based upon our current expectations, various assumptions and/or data available from third parties. Our expectations and assumptions are expressed in good faith and we believe there is a reasonable basis for them. However, there can be no assurance that such forward-looking statements will materialize or prove to be correct as forward-looking statements are inherently subject to known and unknown risks, uncertainties and other factors which may cause actual future results, performance or achievements to differ materially from the future results, performance or achievements expressed in or implied by such forward-looking statements. In some cases, you can identify these statements by forward-looking words such as "estimates", "expects", "anticipates", "projects", "plans", "intends", "believes", "may", "likely", "might", "would", "should", "could", or the negative of these terms and other comparable terminology, although not all forward-looking statements contain such words. Because these forward-looking statements involve risks and uncertainties, the outcome could differ materially from those set out in the forward-looking statements for a variety of reasons, including without limitation, changes in light vehicle production; fluctuation in vehicle production schedules for which the Company is a supplier, changes in general industry and market conditions or regional growth or decline; changes in and the successful execution of our capacity alignment, restructuring and cost reduction initiatives and the market reaction thereto; loss of business from increased competition; higher raw material, fuel and energy costs; changes in consumer and customer preferences for end products; customer losses; changes in regulatory conditions; customer bankruptcies, consolidations, or restructurings; divestiture of customer brands; unfavorable fluctuations in currencies or interest rates among the various jurisdictions in which we operate; component shortages; market acceptance of our new products; costs or difficulties related to the integration of any new or acquired businesses and technologies; continued uncertainty in pricing negotiations with customers; successful integration of acquisitions and operations of joint ventures; successful implementation of strategic partnerships and collaborations; our ability to be awarded new business; product liability, warranty and recall claims and investigations and other litigation and customer reactions thereto; (including the resolution of the Toyota recall); higher expenses for our pension and other postretirement benefits, including higher funding requirements for our pension plans; work stoppages or other labor issues; possible adverse results of pending or future litigation or infringement claims; our ability to protect our intellectual property rights; negative impacts of antitrust investigations or other governmental investigations and associated litigation relating to the conduct of our business; tax assessments by governmental authorities and changes in our effective tax rate; dependence on key personnel; legislative or regulatory changes impacting or limiting our business; political conditions; dependence on and relationships with customers and suppliers; the uncertainty as to which strategic alternatives may be available with respect to the Electronics business, whether any transaction will be commenced or completed as a result of such review, and the timing and value of any such transaction; risks related to the potential separation of the Electronics business; and other risks and uncertainties identified under the headings "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Reports and Quarterly Reports on Forms 10-K and 10-Q and any amendments thereto. For any forward-looking statements contained in this or any other document, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995, and we assume no obligation to update publicly or revise any forward-looking statements in light of new information or future events, except as required by law.

(*) Non-US GAAP reconciliations are disclosed in our regulatory filings available at www.sec.gov or www.autoliv.com

.

Automotive industry in its largest transformation ever

Automotive Mega trends

AUTOMATED DRIVING & CONNECTIVITY

NEW MOBILITY

CLEAN MOBILITY

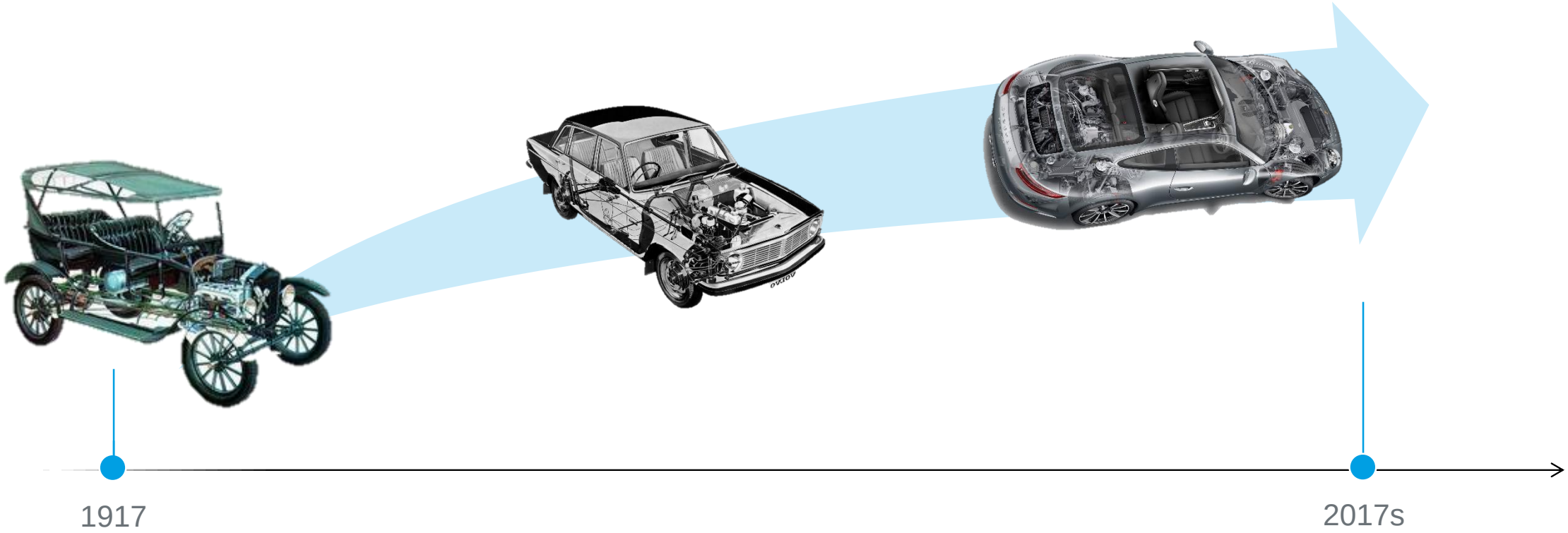
1900

5th Avenue New York City
Easter Day 1900

1913

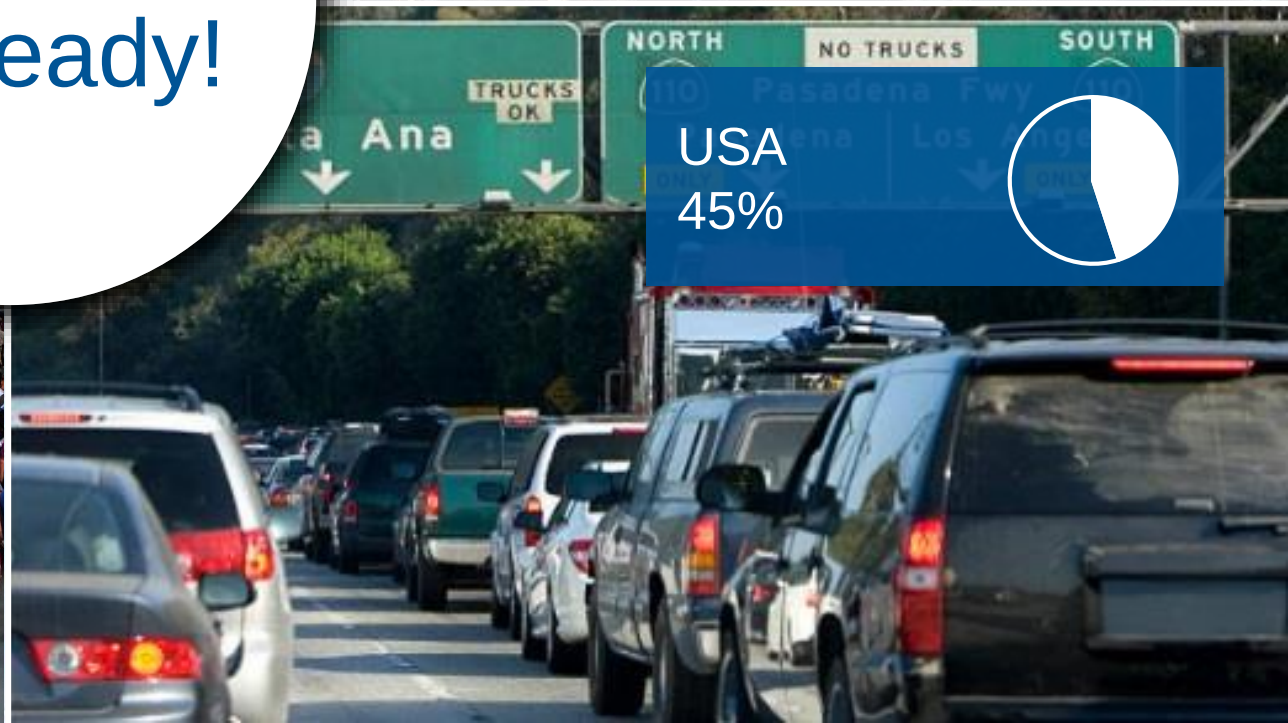
5th Avenue New York City
Easter Day 1913

More than 100 years of innovation – and a Car is still a Car



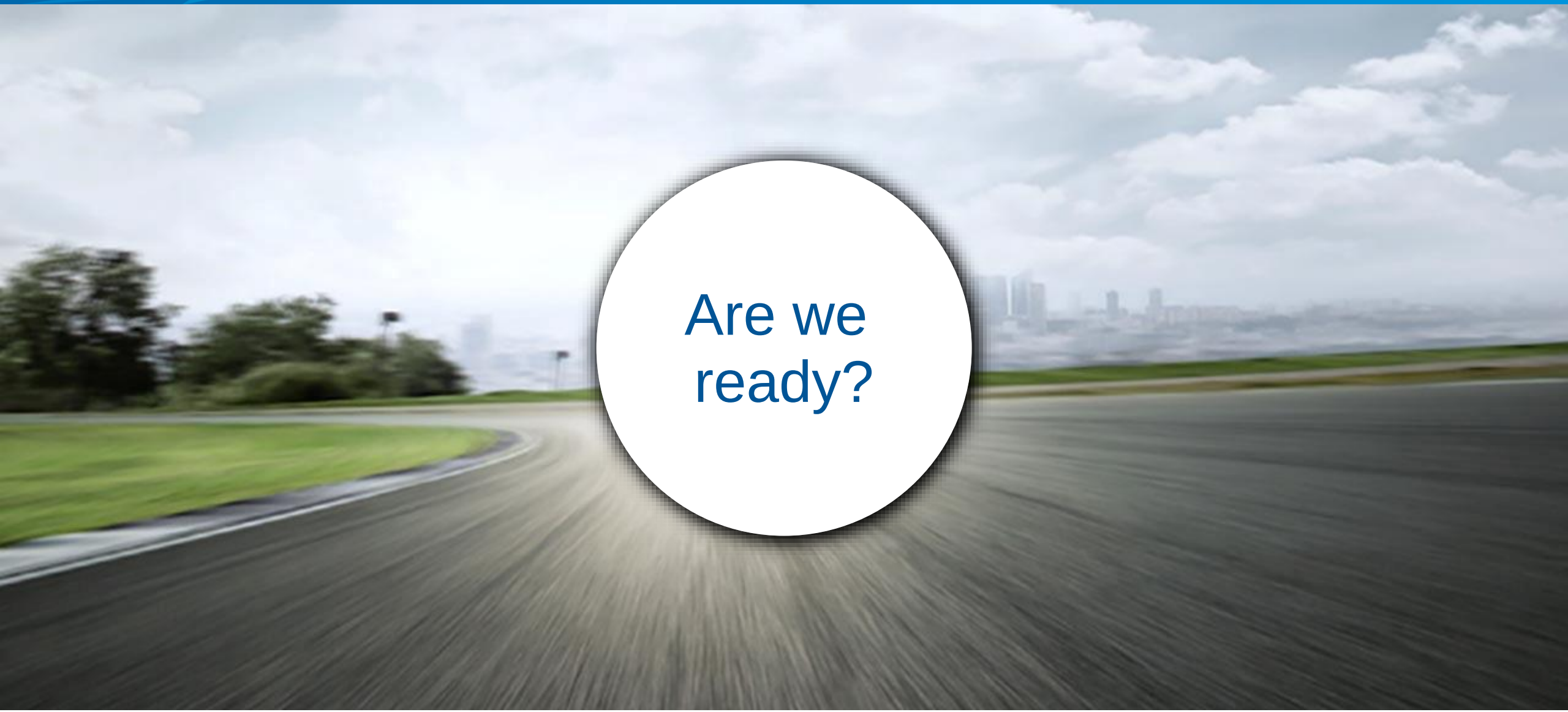
Autoliv

Consumers are ready!



Source: Deloitte study on ”Consumer opinions on advanced vehicle technology ”

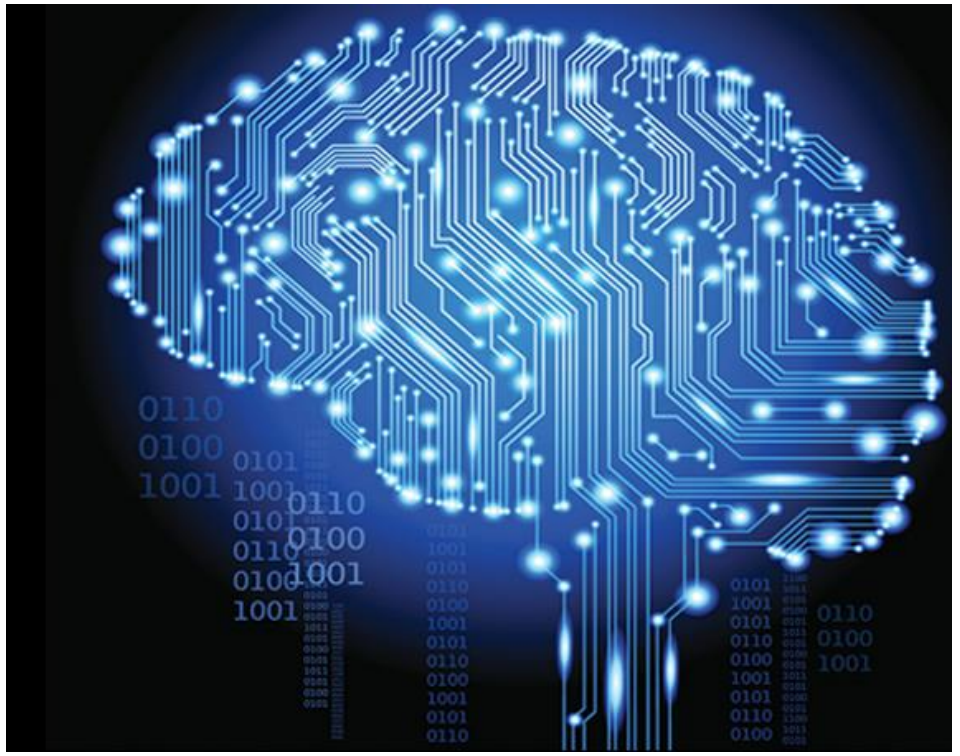
Technology is ready



Success factor: Technology, Innovation and Agility







Autoliv


The Veoneer brand will be a visionary pioneer in automotive electronics, ADAS, automation and new mobility
veoneer

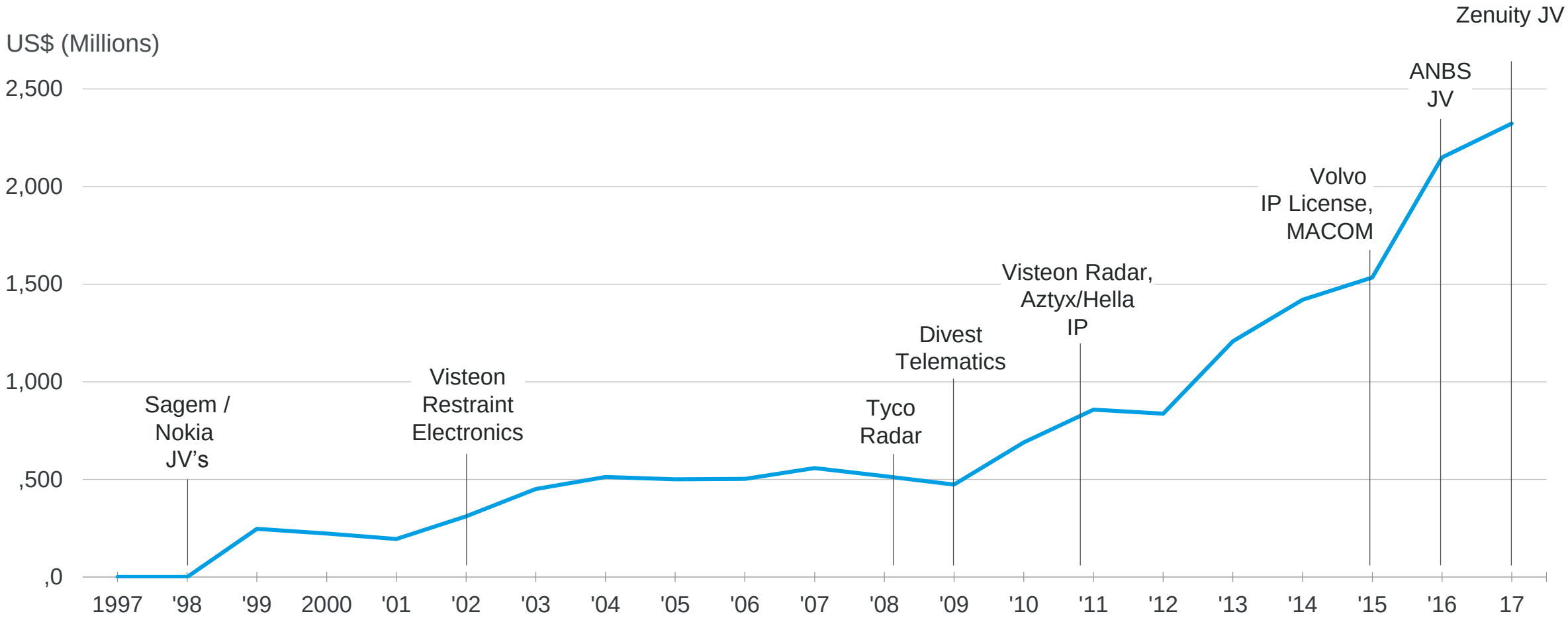
Different visions of Autonomous Driving…

Autonomous car as premium product

Autonomous car as shared resource

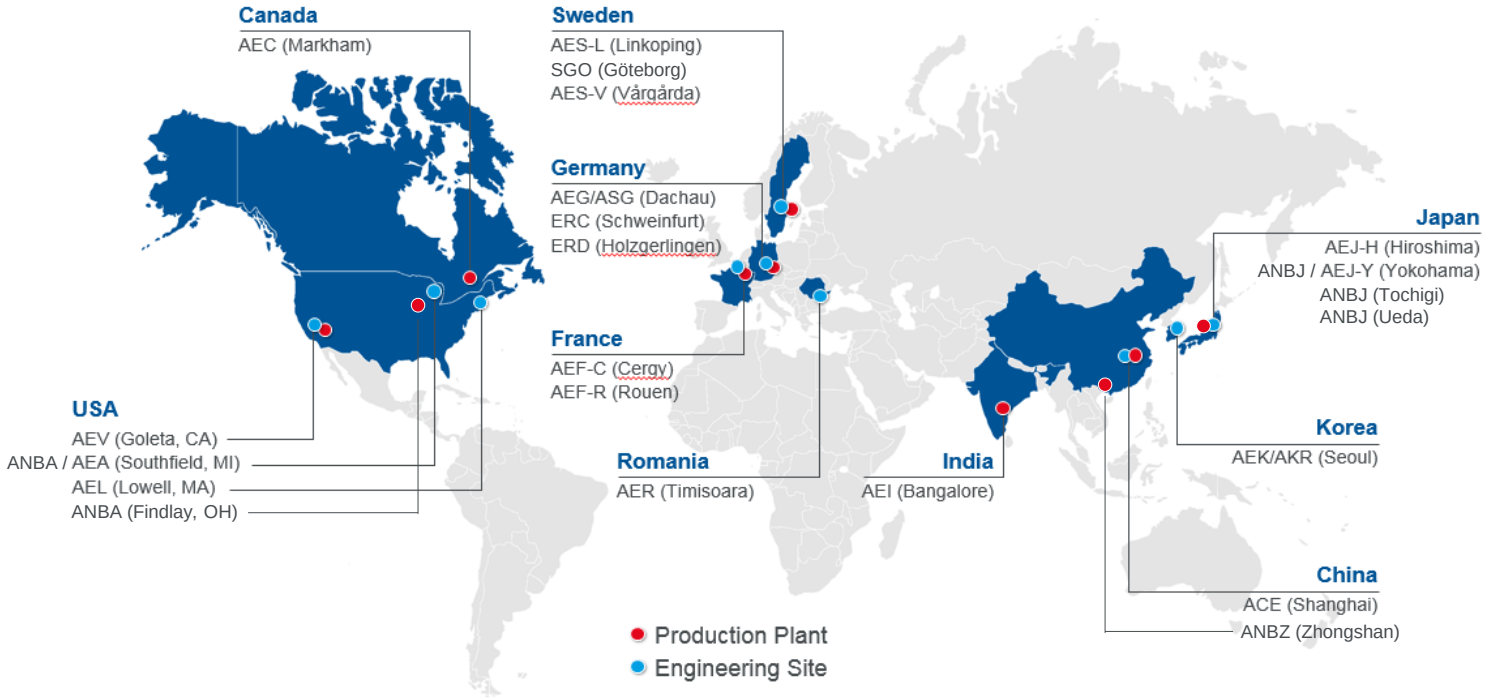
Additional benefits to consumers

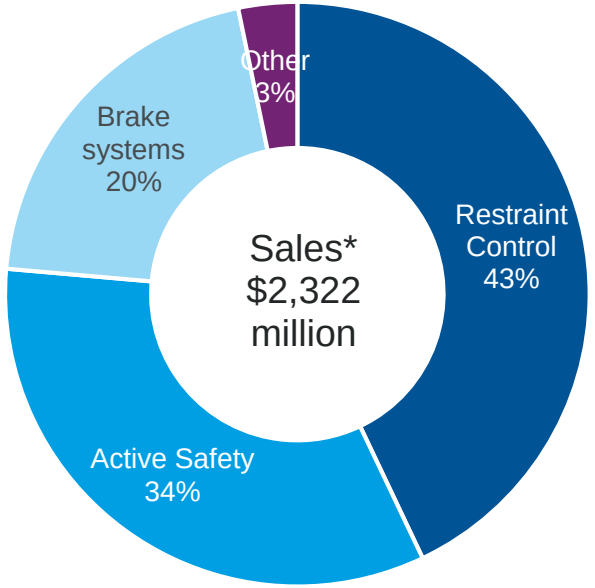
Electronics – Our Journey so far



(*) Active Safety includes: Radar, Vision (Forward looking Mono/Stereo/Night), Advanced Driver Assist Electronic Control Unit, Positioning Modules.

Autoliv Electronics – A strong footprint





7,500 EMPLOYEES in 10 countries	**3,600 ENGINEERS** of which 65% software	**20 OEM CUSTOMERS** and 7 new entry customers	**20** FACILITIES

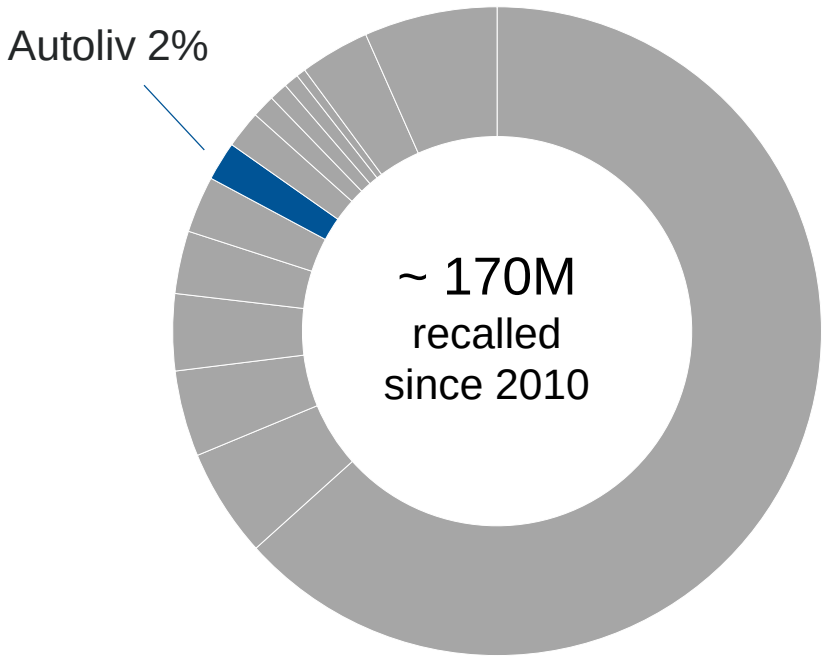
* FY2017

Autoliv Electronics- a strong basis for customer trust

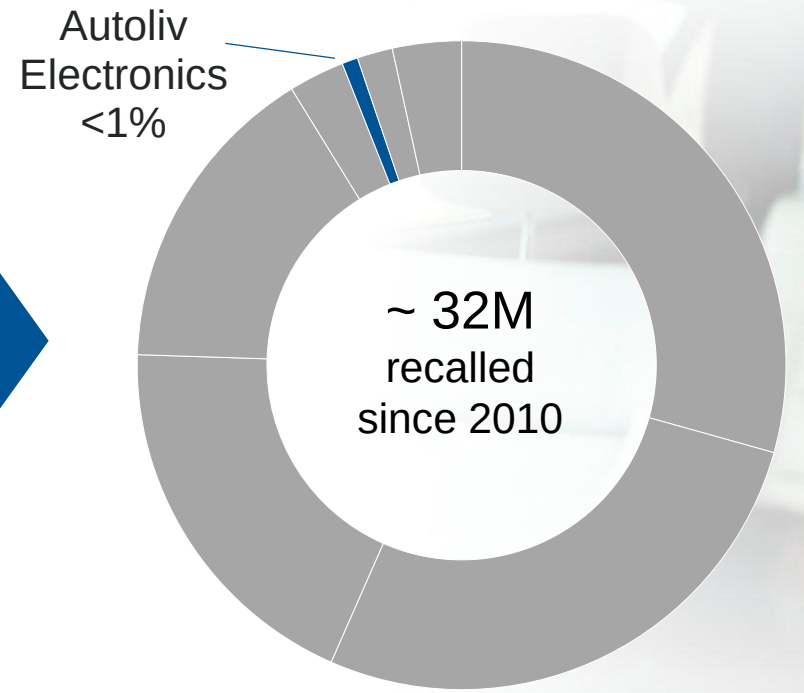
Our Passive Safety quality journey extends really well into Electronics

Q5

All Safety Products

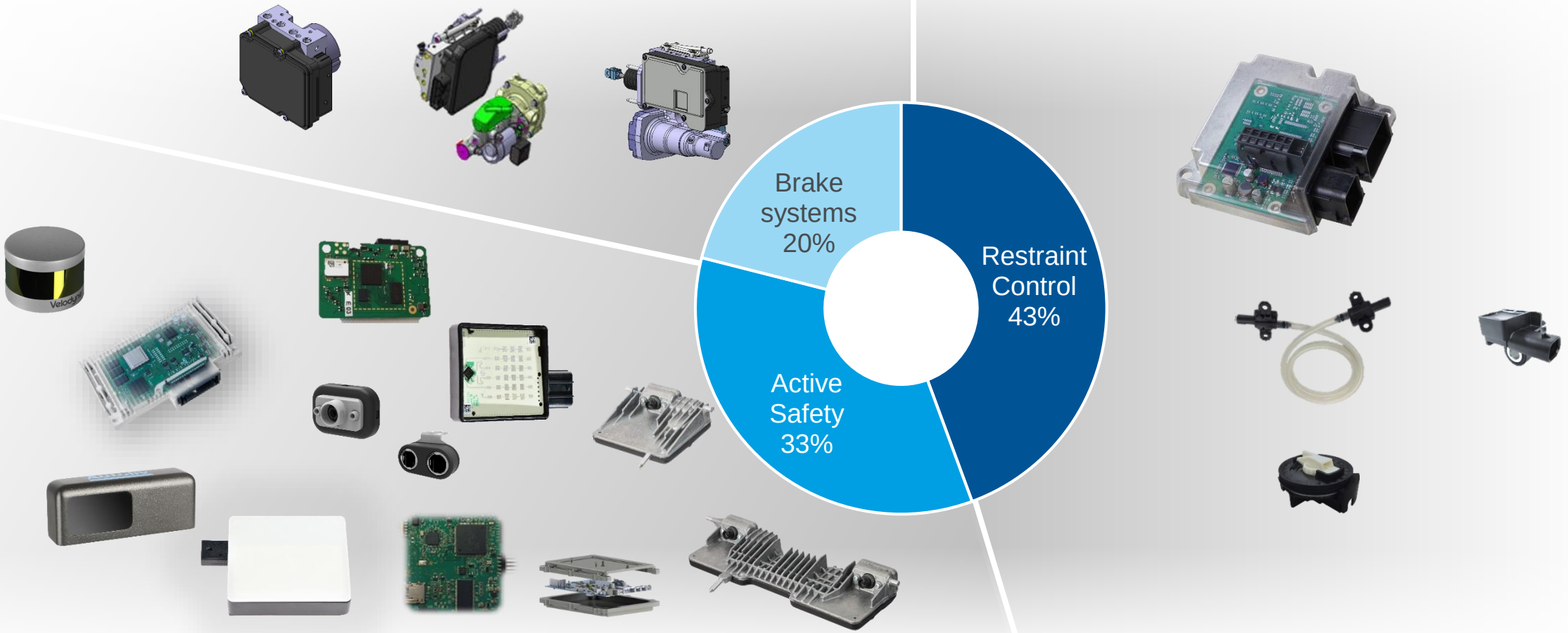


Electronics



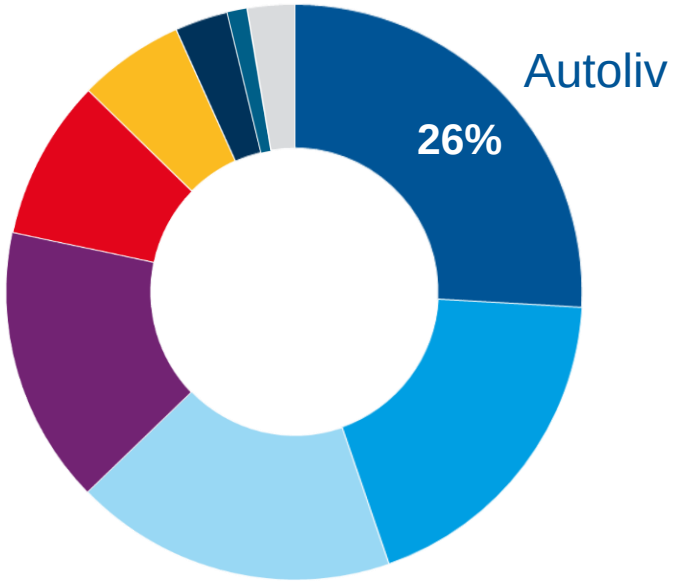
Scope: Japan, Canada, US, China, South Korea, Australian, EU, UK, DE
AB, SB, Electronics
2010-01-01 to 2017-06-31

Autoliv Electronics – Among the broadest safety electronics product portfolios in the world

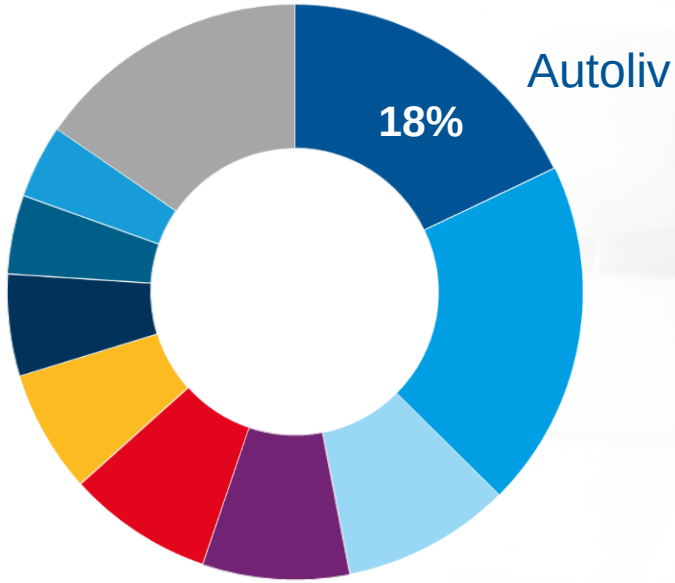


Autoliv Electronics – Top 2 market share position in 2016 for RCS and Active Safety

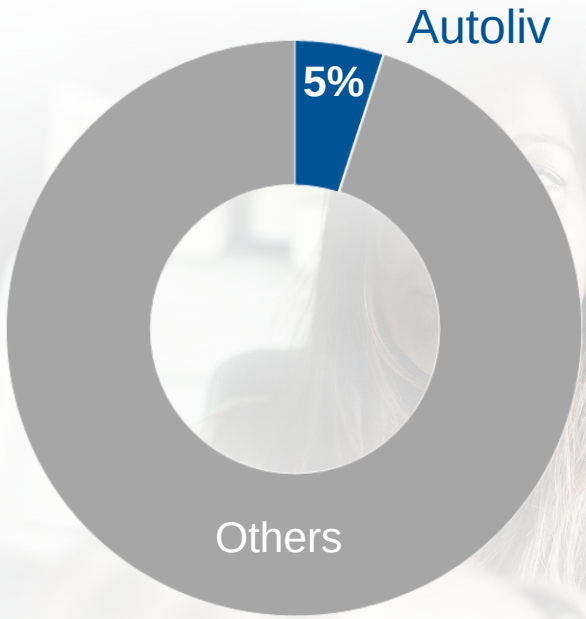
RESTRAINT CONTROL SENSING



ACTIVE SAFETY



BRAKE CONTROL



Active Safety – building for the future

Autoliv

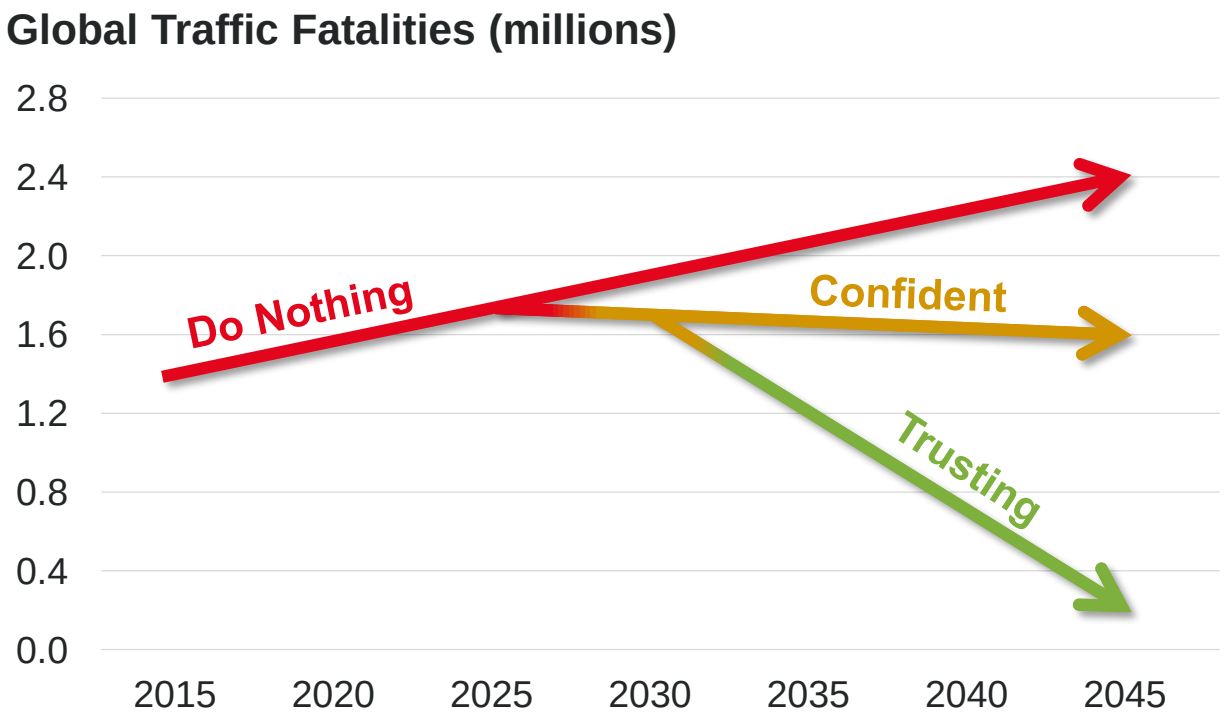
Real life safety

Standardized Test Scenarios

Real Life Situations and Benefit

Why We Are Here - The Road Towards Saving More Lives

Mitigating the Future?



Source: Autoliv Research

Driver Confidence

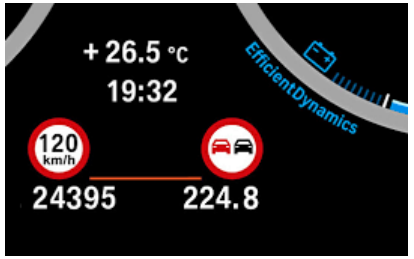
- Today's safety technology in all new vehicles
- Consumers willingness to buy and use
- Confidence in the vehicles' perception

Occupant Trust

- Driver co-pilot and shared control
- The driver considers the vehicle intelligent
- Eventually full trust in the vehicle to drive

From ADAS to HAD

Level 0 through Level 5

0	1	2	3	4	5
					
NO AUTOMATION • Forward Collision Warning • Traffic Sign Warning • Blind Spot Monitoring	**DRIVER ASSISTANCE** • Autonomous Emergency braking (AEB) • Lane Keep Assist • Auto High Beam	**PARTIAL AUTOMATION** • Lane Change Assist • Lane Centering • Advanced parking	**CONDITIONAL AUTOMATION** • Highway Assist • Traffic Jam Assist • Automated parking	**HIGH AUTOMATION** • Piloted Highway Driving • Geo-fenced City Pilot • Unattended Valet Parking	**FULL AUTOMATION** • Mobility on Demand • Autonomous Driving

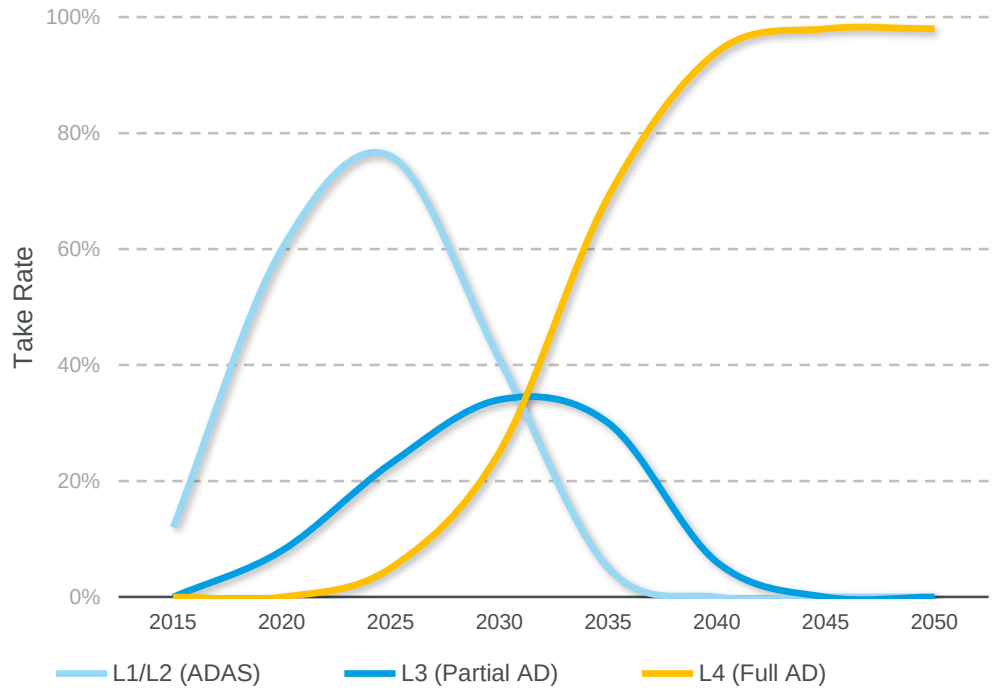
ADAS
Automated Driver Assistance Systems

HAD
Highly Automated Driving

Autoliv

AD is estimated to be <10% of the market in NA by 2025

Estimated Take Rates of SAE Level1-4 Take Rates

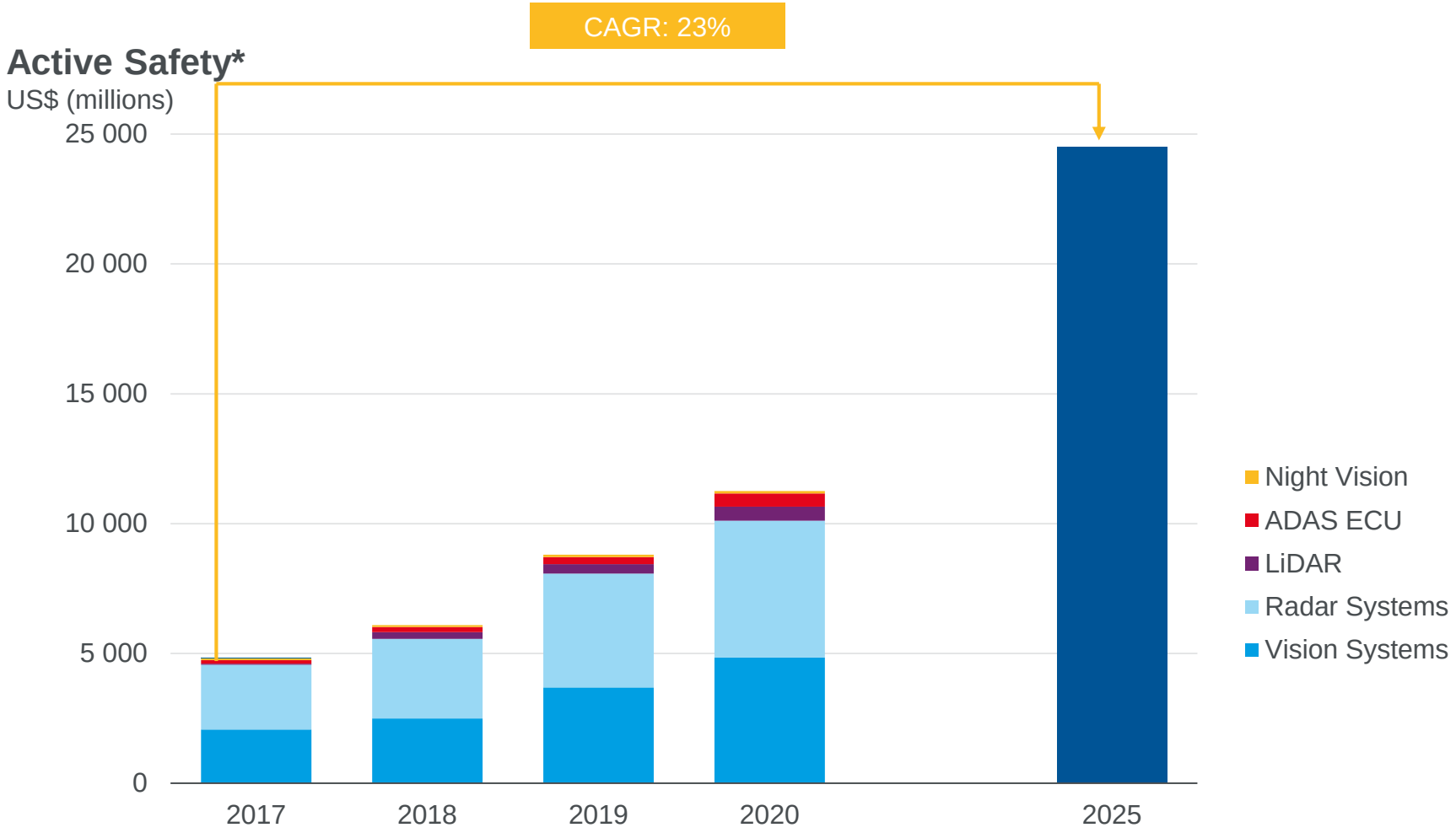


Estimates show SAE L4 gain 5% traction 2025

- Most of the volume in the market will be advanced driver assistance systems, with autonomous driving comprising less than 10% by 2025.

SOURCE: Goldman Sachs

Active Safety Sensor Market



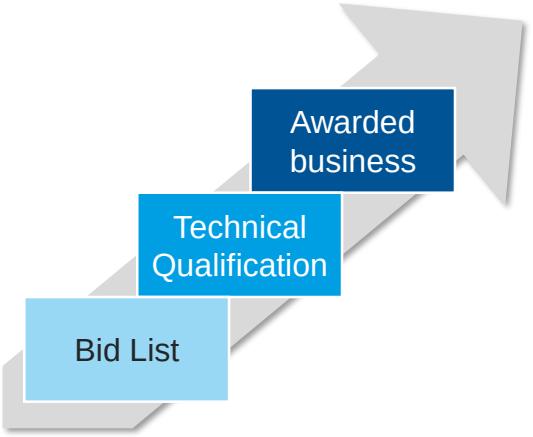
*) Active Safety Market includes Radar (Front/side/rear), Forward looking Cameras (Mono/Stereo/Night Vision), Other (Advanced Driver Assist Electronic Control Unit, LiDAR).

Active Safety – Customer snapshot

2013

Represents >90% of global light vehicle production

Customer	RADAR			VISION*			ADAS ECU			LIDAR		
Customer 1												
Customer 2												
Customer 3												
Customer 4												
Customer 5												
Customer 6												
Customer 7												
Customer 8												
Customer 9												
Customer 10												
Customer 11												
Customer 12												
Customer 13												
Customer 14												
Customer 15												
Customer 16												
Customer 17												
Total	5	5	5	3	1	1	1	1	1	0	0	0



**Vision based on Autoliv developed algorithms,*

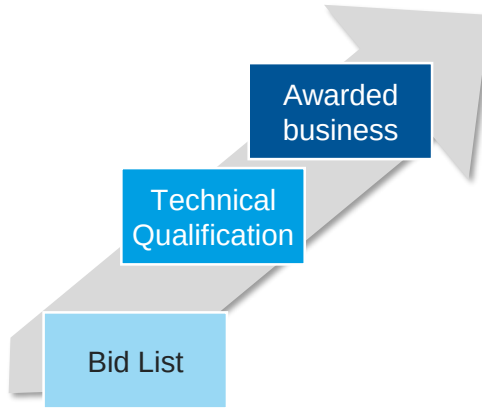
Electronics– Customer snapshot

2017 Dec

Active Safety

Customer	RADAR			VISION*			ADAS ECU			LIDAR			RCS			BRAKE		
Customer 1																		
Customer 2																		
Customer 3																		
Customer 4																		
Customer 5																		
Customer 6																		
Customer 7																		
Customer 8																		
Customer 9																		
Customer 10																		
Customer 11																		
Customer 12																		
Customer 13																		
Customer 14																		
Customer 15																		
Customer 16																		
Customer 17																		
Total	14	12	7	13	8	4	10	8	2	11	3	1	15	13	12	7	5	3

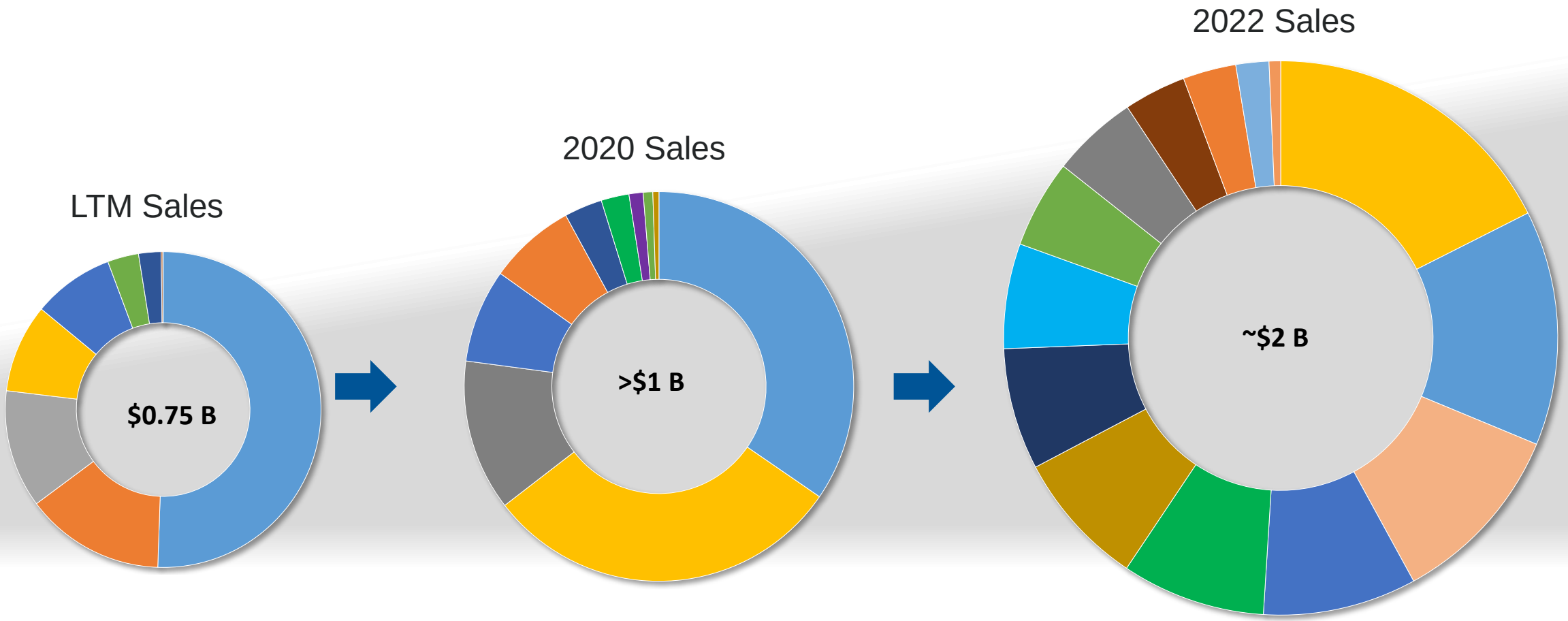
Represents >90% of global light vehicle production



*Vision based on Autoliv developed algorithms,

Autoliv

Active Safety Revenue* by OEM group

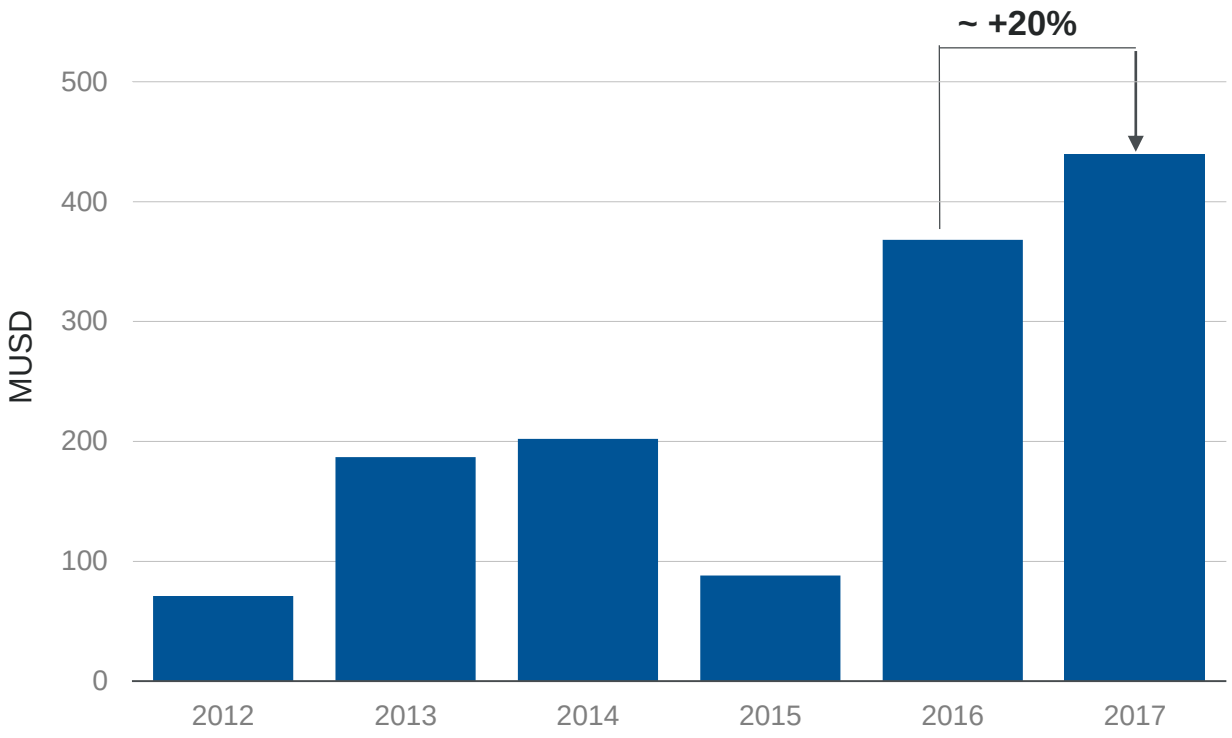


(*) Non-US GAAP measure excludes costs related to Antitrust matters and capacity alignment, (**) Active Safety, (***) Compound Annual Growth Rate 2017 to 2020 and 2017 to 2022 assuming 2017 LTM as of Q2'17.

.

Order Intake Annualized sale

Active Safety



(*) $ value represent expected average annualized sales from respective years order intake, historic data is based on CMD materia1.

Autoliv

Active Safety - Selected Customer Launches

Vision
- Europe (SOP 2018)
- Europe (SOP 2019)
- Asia (SOP 2018)

ADAS ECU
- Europe (SOP 2019)

Night Vision
- North America (SOP 2020)

Advanced ADAS Software
- Europe (SOP 2019)

Radar 24 GHz NB
- Europe (SOP 2020)
- Asia (SOP 2019)
- North America (SOP 2019)

Radar 77GHz
- Europe (SOP 2019)
- Asia (SOP 2019)
- North America (SOP 2019)

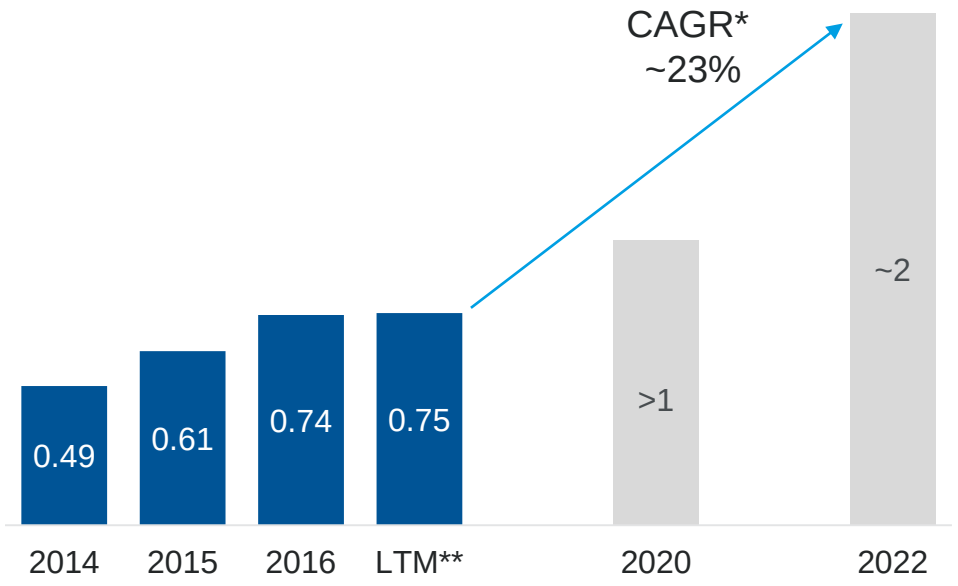
New Launch Q1-2018

Autoliv Active Safety Sales Growth

CMD Target: 2020 Sales target of >$1B

- High market growth
- Strong product offering
- Strong bid-list presence
- New order wins during 2016-17

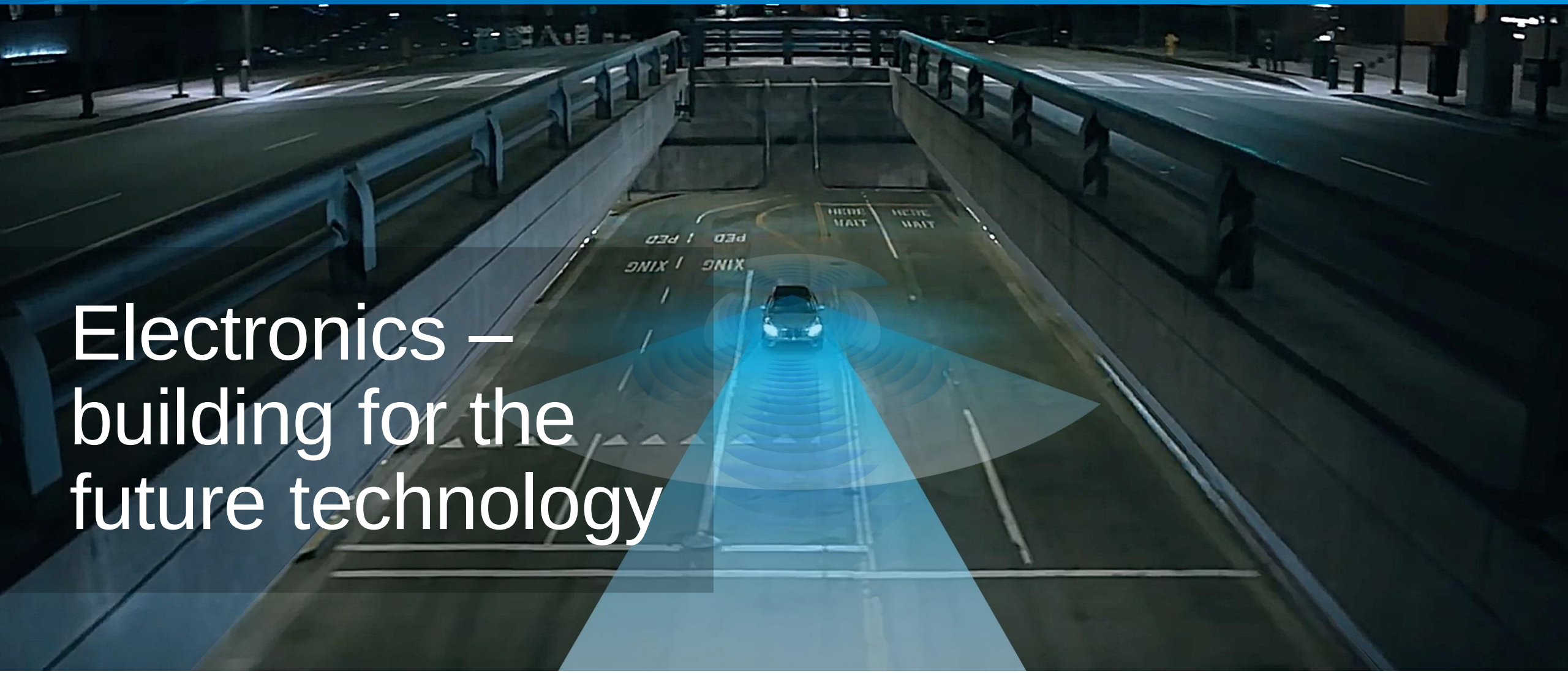
Active Safety Sales – US$ Billion



2025 Ambition

- Active Safety sales ~$4B

*(** CAGR Compound Annual Growth Rate.*
(**) Last Twelve month sale as of June 30,2017.

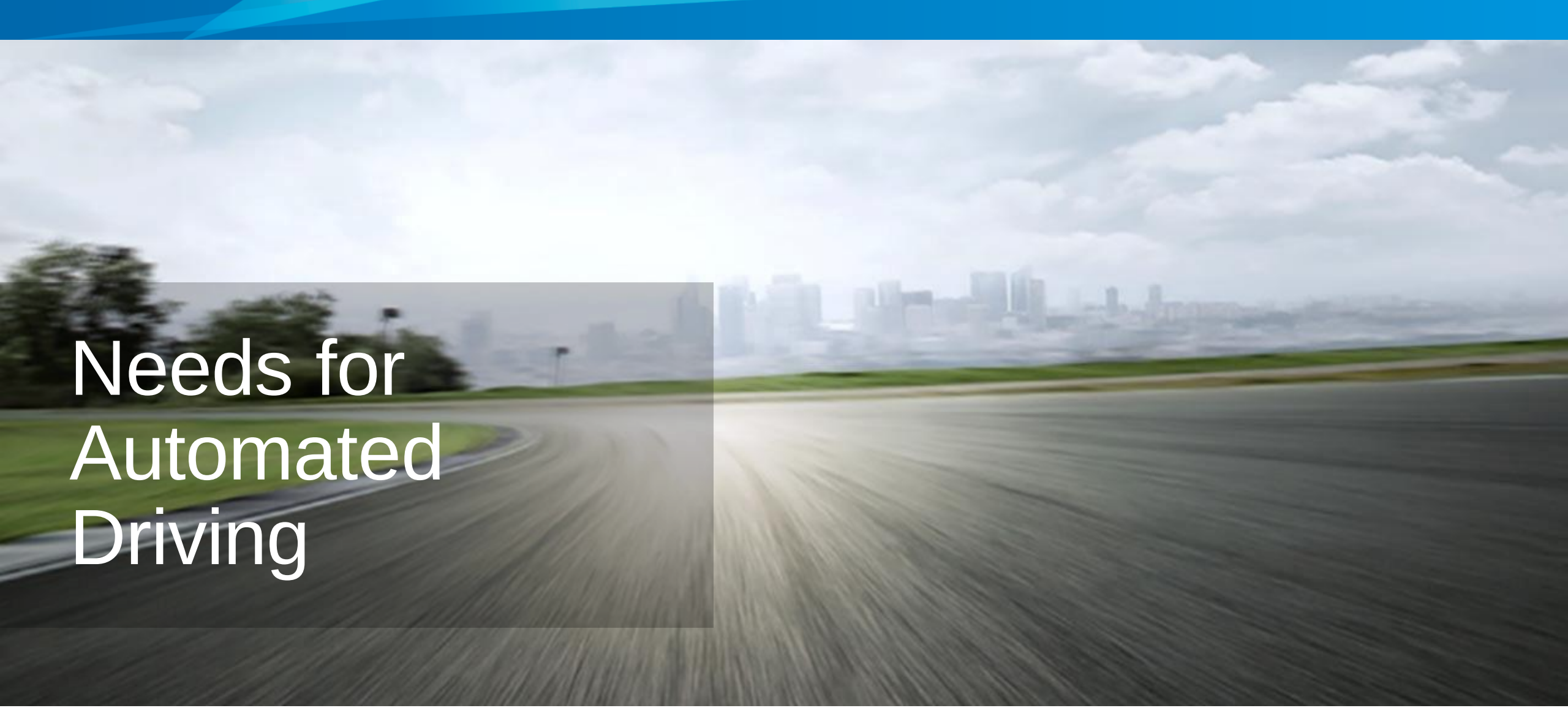


Electronics – building for the future technology

Autoliv

Content

- Needs for Automated Driving
  - Overall needs (sensors, system approach, safety, validation, mapping and connectivity)
  - Cooperation models
- Technology Portfolio (sensor to system supplier)
  - ALV sensor portfolio
  - System approach
- Zenuity
  - Setup/model & cooperation model
  - Roadmap
- Advancements in Vision technologies
  - Essentials in next steps in Vision technologies (sensor, processing, camera setup/coverage)

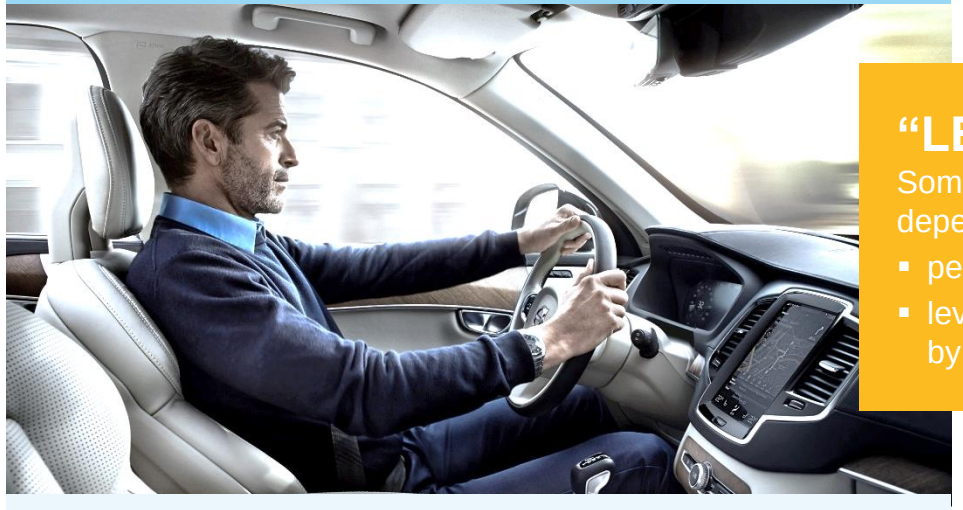


Needs for Automated Driving

Defining ADAS (L2) vs. AD (L4)

Supervised vs Unsupervised

DRIVER RESPONSIBLE



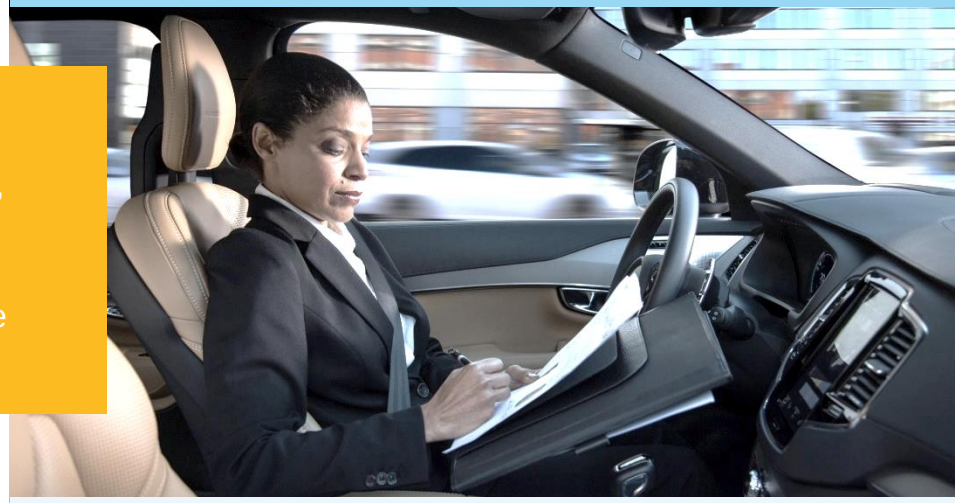
- Driver responsible to intervene whenever needed
- Limitations: Lane markings, road design, oncoming objects, pedestrians, animals, restrictions in steering / braking / acceleration force that can be applied

"LEVEL 3"

Something in the middle, depending on:

- performance limitation
- level of risk acceptable by Customer

MANUFACTURER RESPONSIBLE

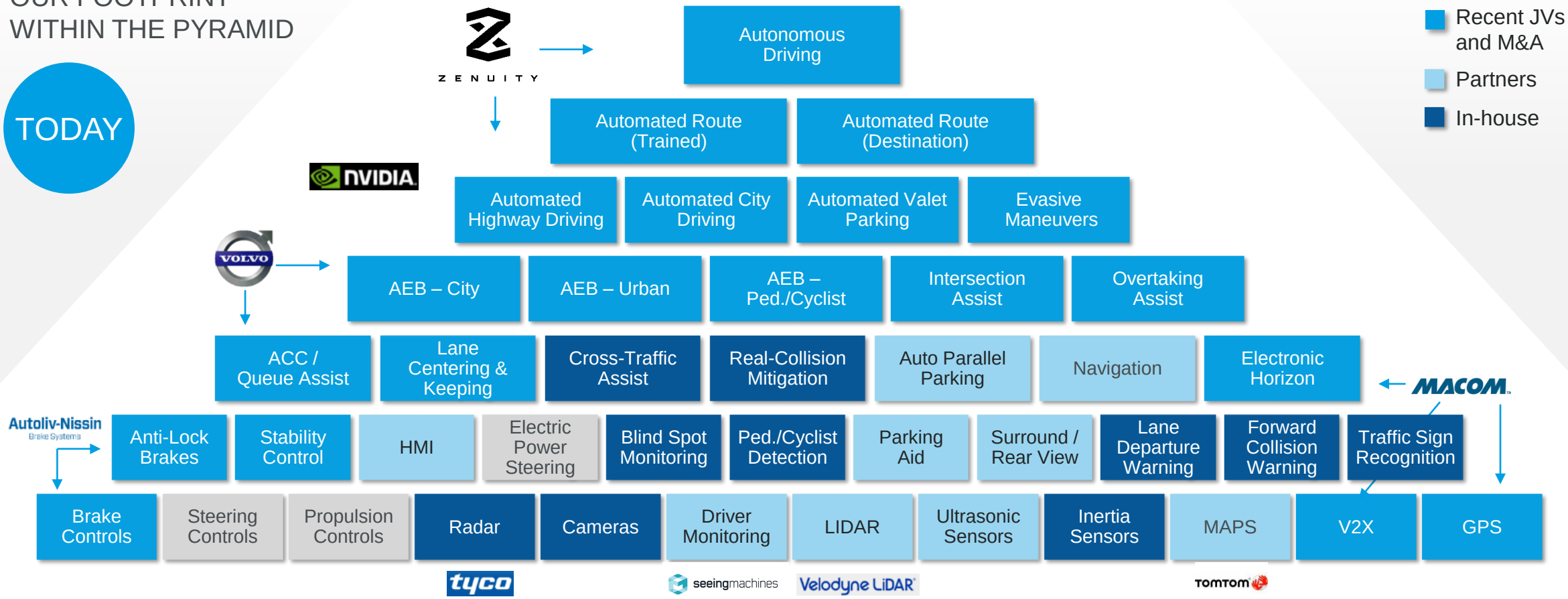


- Tested on and expects extreme situations
- Takes precautions, takes decisions
- Driver free to do something else
- Overall safety requirement: *Fewer caused accidents (by some margin) than humans*

Electronics Active Safety – Building for the long-term

OUR FOOTPRINT
WITHIN THE PYRAMID

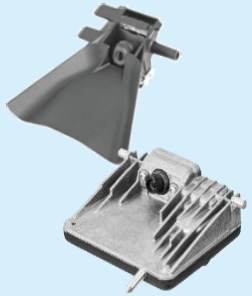
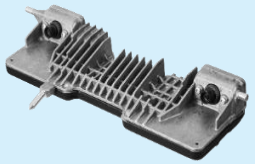
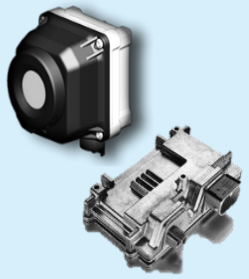
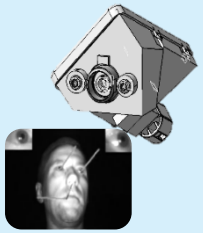
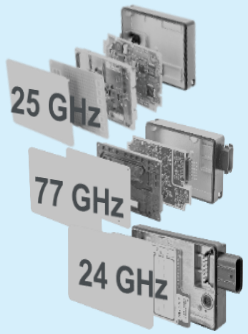
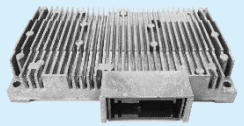
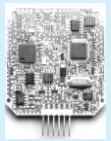
TODAY



Autoliv

Active Safety Product Offering

Products

Mono Vision	Stereo Vision	Night Vision	Driver Monitoring	Radar	ADAS ECU	RoadScape	LiDAR
							
  	 	  	 Drive me	  	 	 	

The Developing Eco-System

Zenuity bringing Sensor Fusion, Decision and Control

Autoliv

Cloud

ERICSSON Partner

Autoliv

Sensors

Decision & Control

Sensor Fusion

Actuators

Partners

seeingmachines Velodyne LiDAR

ZENUITY System

NVIDIA Partner

Partner

neonode

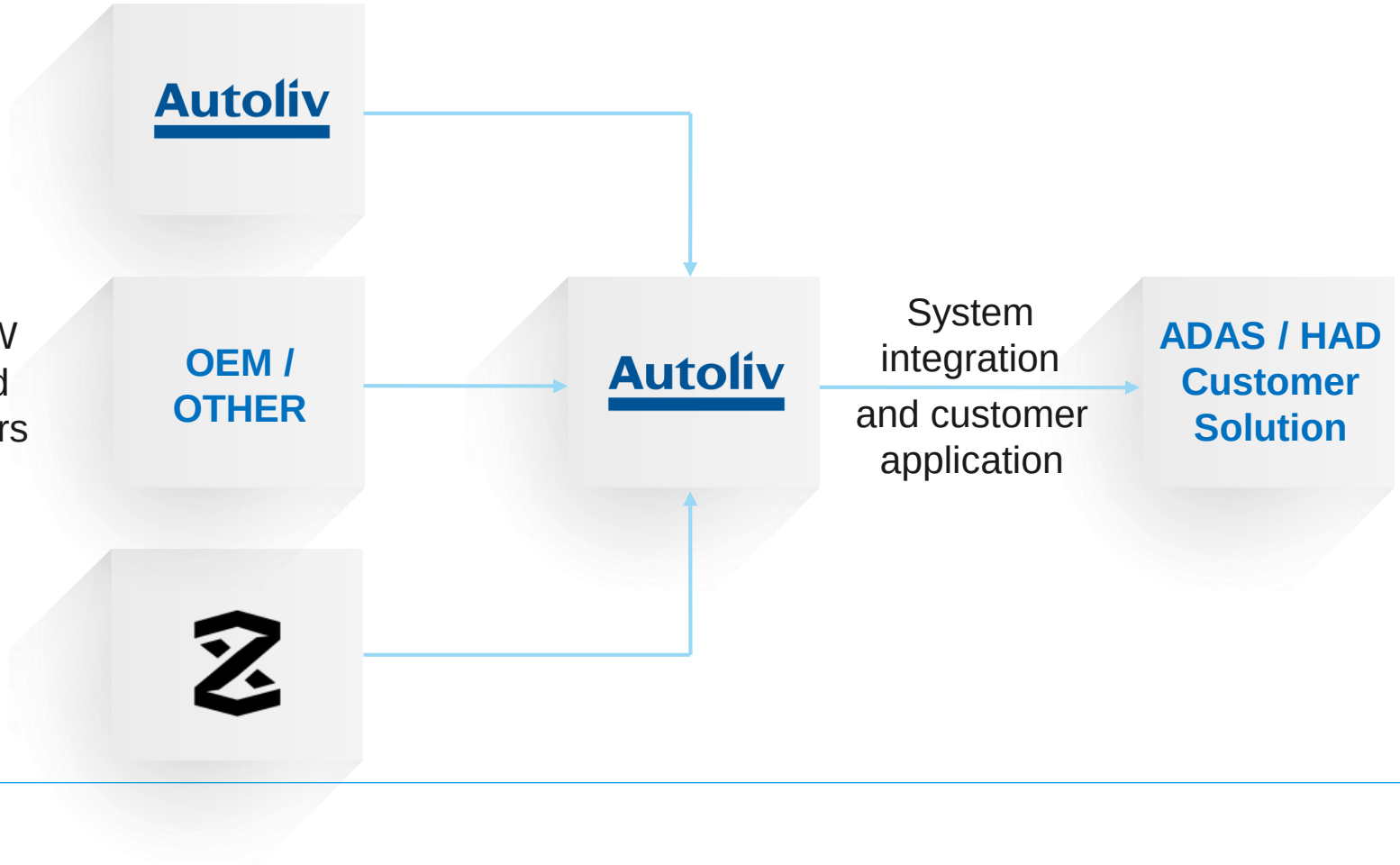
Autoliv

Autoliv's Business Model

- ADAS ECU
- Sensors
- Base SW

- Black Box SW for ADAS and HAD / Sensors

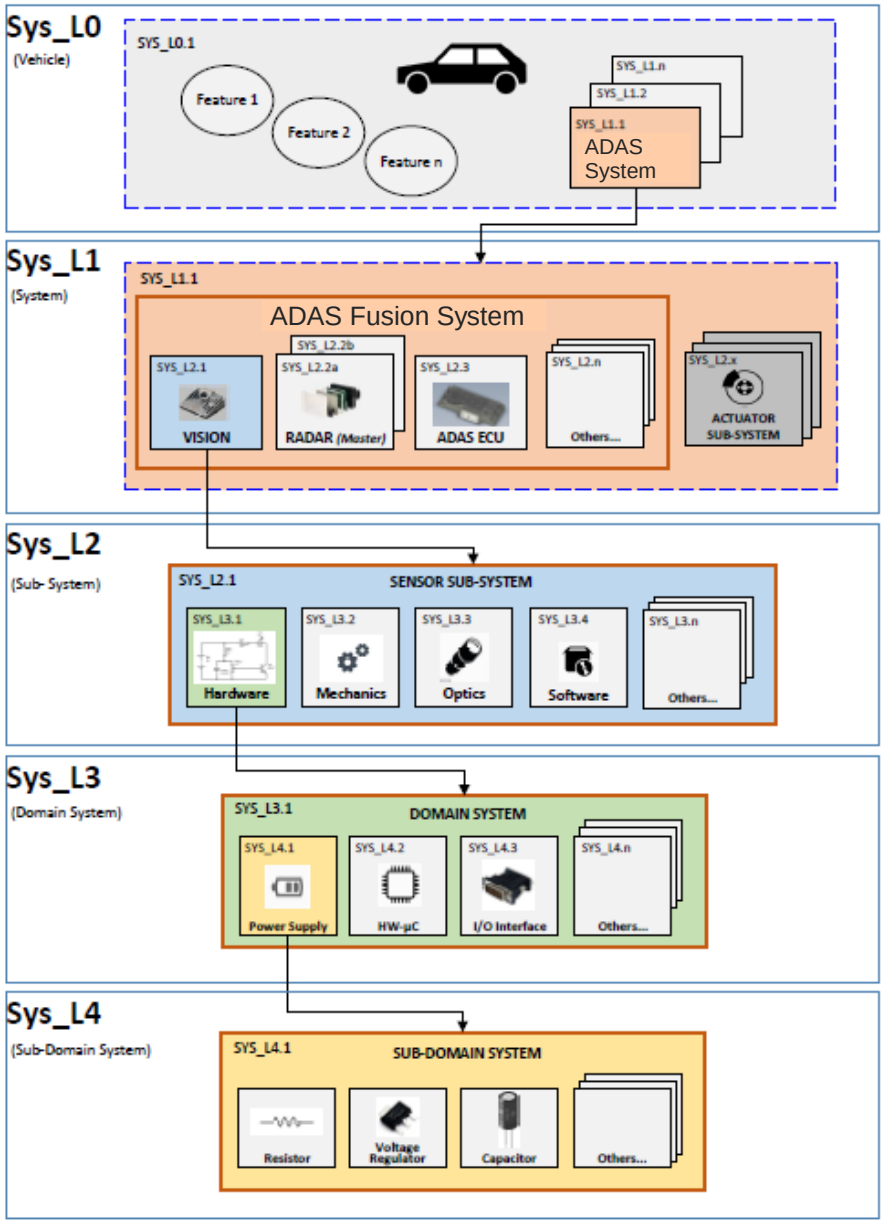
- SW Systems for ADAS and HAD

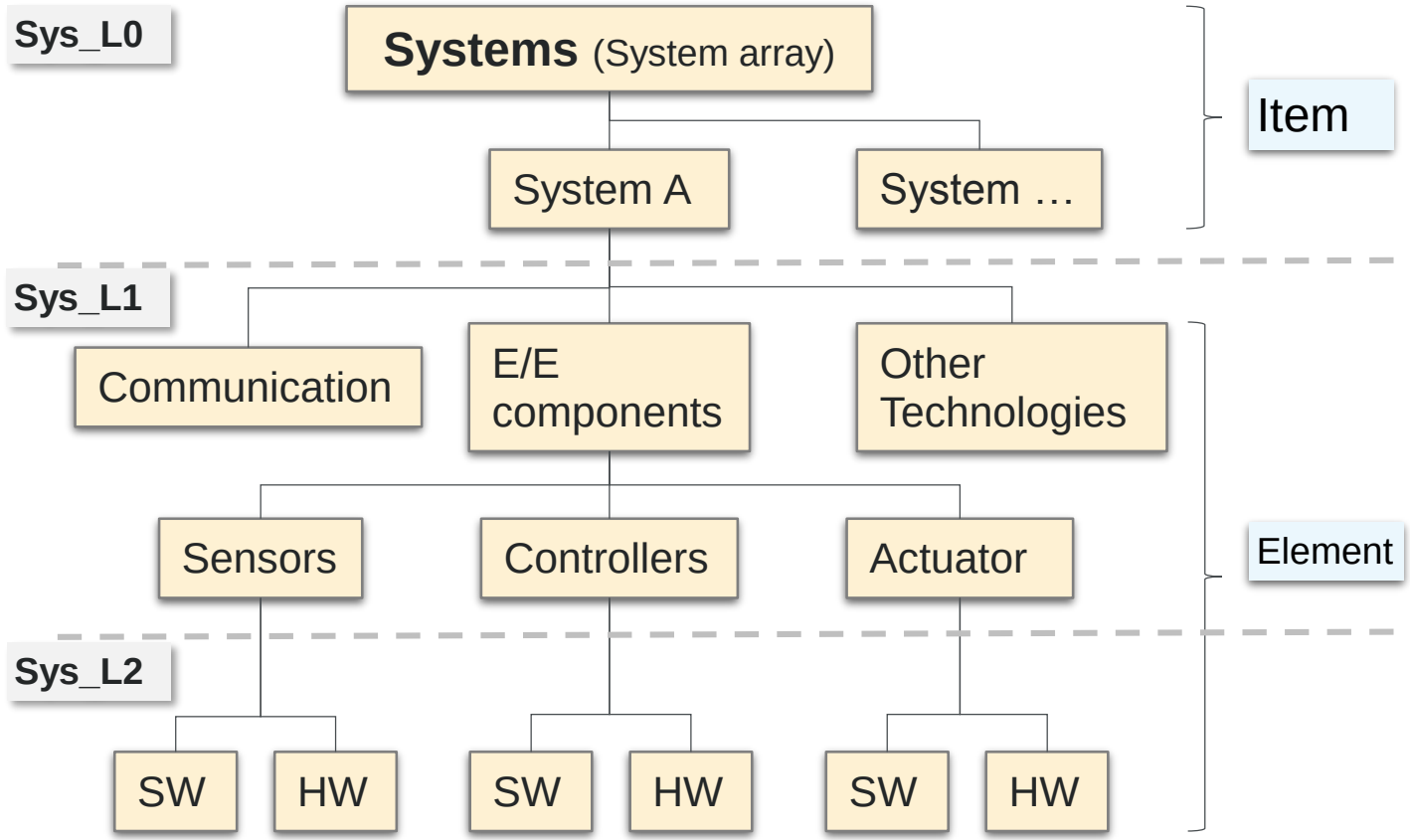


Autoliv could offer the complete set of modules / features at each level of modularity (global system, sensors, ADAS ECU, SW features) from single component to complete global systems

Customers could concentrate on the contents that could be differentiating for him versus competitor

Top-Down System Layers





Autoliv

Data Collection

- Thousands of hours of data corresponding to millions of km required to get statistical relevant results for each function
- Data collection required with a suitable distribution, geographically spread, different weather, seasons, time of day, different use cases
- Data distribution planned together with OEM and based on ALV experince from sensor performance
- Collected data marked by data marking team with relevant instructions from development team
- Example of data collection scene distribution:

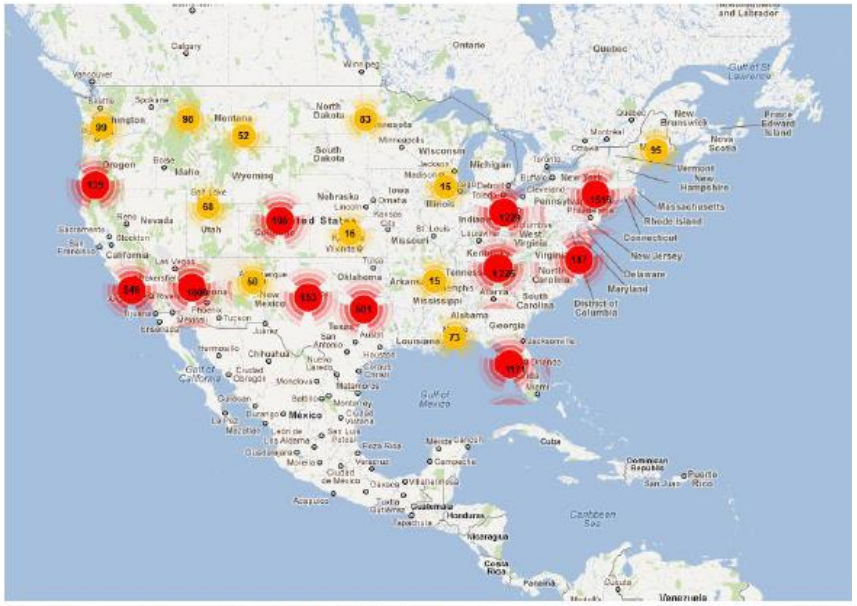


Figure 6. Coverage of NV data collection in USA as of 2012-02-21. The numbers in the figure indicates the number of recorded files recorded around the location of the colored circle.

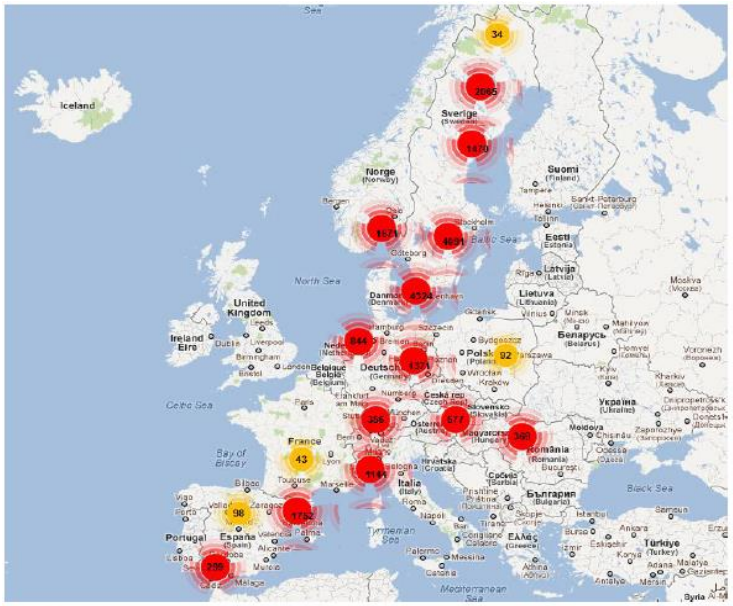


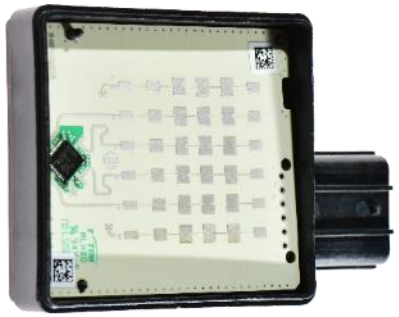
Figure 5. Coverage of NV data collection in Europe as of 2012-02-21. The numbers in the figure indicates the number of recorded files recorded around the location of the colored circle.

Active Safety Technologies

Safety Electronics Technology

Leading radar sensors to cover complex real life driving scenarios

Autoliv develops leading 24GHz and 77GHz Radar sensor systems. Using unique Radar Signal Processing methods and very high bandwidth allow best in market performance.



Safety Electronics Technology

New Vision Systems and Algorithms

2017 Mono Vision AEB (3rd Generation)

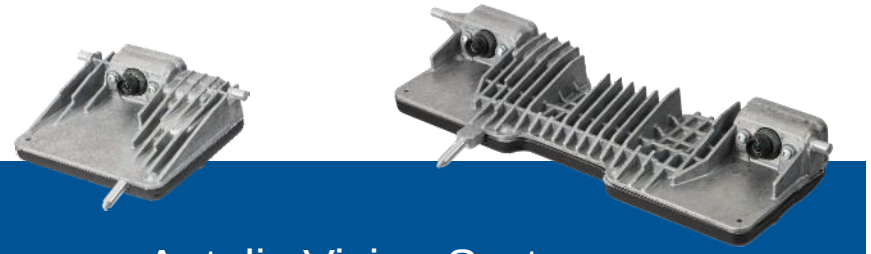
- Mono Camera with Autoliv Vision based AEB
- Cost effective solution to meet NCAP 2018 (Lane, AEB, TSR)

2019 Mono and Stereo Vision (4th Generation)

- Next generation Stereo and Mono cameras
- Support Automated Driving and NCAP 2020
- Conquered two more customers, accepting Autoliv algorithm solution

2022+ Next generation Vision systems (5th Generation)

- High resolution imagers
- Advanced algorithms and processing
- Multiple camera support



Autoliv Vision Systems

NCAP
Driver Assist
Automated Driving support

Development Engineering Vision Systems

> 500 Engineers & technicians

- Majority with MSc in relevant areas
- ~ 10% with research education (PhDs or higher)
- > 50% in Image Processing
- Current customers VW/AUDI/Porsche/BMW/Daimler/GM
- > 15 years automotive experience with vision systems

Core competences:

- **Image processing** algorithms and software (Mono, Stereo, FIR & Fusion) Stereo, **optical flow**, **neural networks**, object segmentation classification and tracking
- Image processing electronics including processing platforms and image sensors
- Optics and camera design
- Testing, validation and data collection (large infrastructure for data storage, Hardware in Loop and data marking)
- CAN/-FD, Flexray, AutoSar, Ethernet and ADTF in development and/or serial production
- Database size: 3PB (2016), 17PB (2017), **27PB** (2018-19)

Supporting Development sites/Partners

- Autoliv Electronics Romania, Detroit-US, Munich-DE, Goleta-US, Japan and China
- Hella Aglaia (Berlin), External development in Croatia & Serbia
- Linköping, Gothenburg and Uppsala Universities
- Swedish Defense Research Lab.

NV launch 2008 first PD Single Camera FIR based system on the market
2013 animal detection system

BMW Innovation award 2011 for V/NV successful launches

World best Stereo Vision Technology in production 2015
OEM SOP in 2017 using Mono Vision for AEB

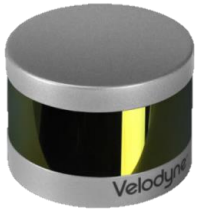
Safety Electronics Technology

LiDAR Sensing to Complement Vision and Radar

2018 AUTONOMOUS (L4/5) ***2021*** PREMIUM OEMs (L3/4) ***2024*** MASS MARKET (L3/4) ***2027***

WAVE 1 | WAVE 2 | WAVE 3

Mobility as Service Drives Market led by New Entrants



Velodyne LiDAR

360° Surround Scan
200m range

Highway Pilot (L3/L4) Vehicle Launches for Traditional Automotive OEM Business

Forward Looking, 200m,
Complement to Radar + Vision

Velodyne and Autoliv working together to develop a consumer vehicle LiDAR

Success of Mass Market LiDAR Dependent on Cost/Performance Evolution vs. Vision and Radar

Complement or *Competitor?* to Vision and/or Radar

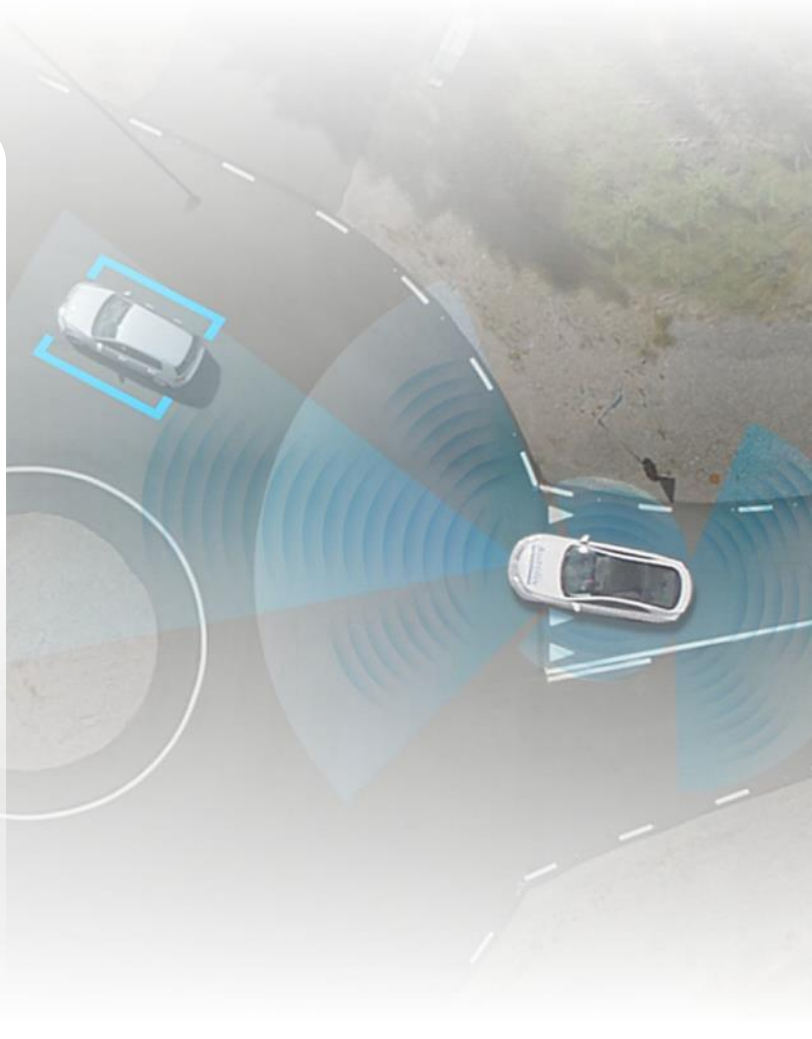
Autoliv

Safety Electronics Technology

Higher performing computing platforms

Autoliv develops customized ADAS/AD ECU technology and provides outstanding functional safety integration capability

- Connectivity
- Cyber Security
- Multi SoC integration
- Deep Learning Acceleration



Safety Electronics Technology

Far Infrared Technology (Night Vision)

- Far Infrared was introduced into automotive market in late 1990's and has grown to over 30 vehicle lines by 2017
- Termed "Night Vision" but has many other benefits to handle challenging situations enhancing highly autonomous driving performance.
- **2013 Night Vision (3rd Generation)**
  - Single FIR Camera design
  - Animal and Vehicle Detections
- **2020 Night Vision (4rd Generation)**
  - Improved Field of View and detection distances
  - Reduction in Size, Weight and Cost
  - Enhanced algorithms for Animal and Vehicle Detections
  - Highly Autonomous Driving applications

Safety Electronics Technology

Roadscape – Positioning, Mapping and V2X Connectivity…

6th Gen Positioning Module

- Best in Class Accuracy

V2V DSRC + Horizon Module

- Secure, Small Footprint

Digital Mapping & Horizon Module

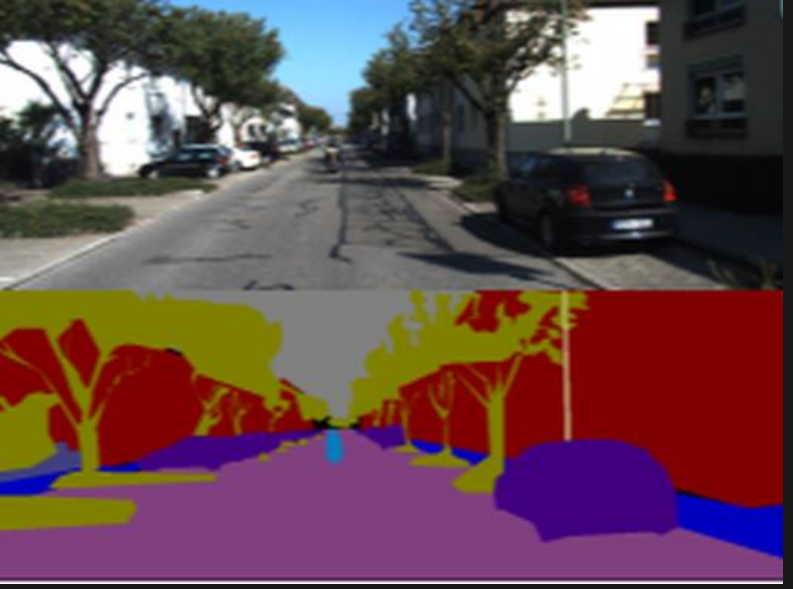
- SD + HD + Sensor Maps
- Real-time Updates
- Map Streaming

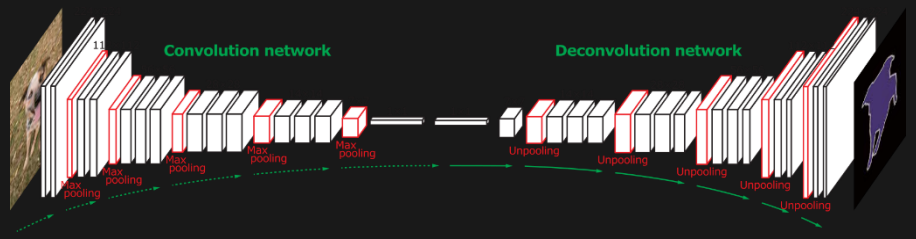
Safety Electronics Technology

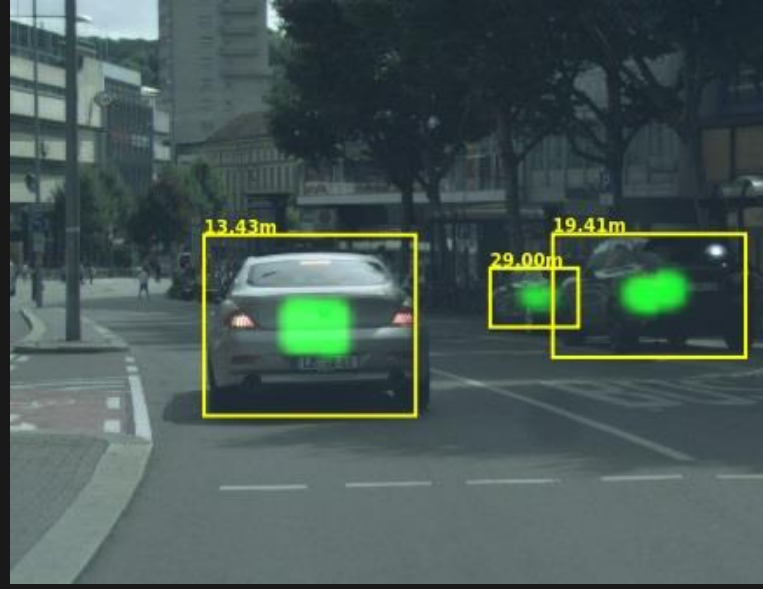
Monitor driver behavior to improve comfort, safety and automated driving

Driver Monitoring Systems

- Innovation for growing interior safety market and autonomous driving
- Synergies with partner, Seeing Machines, to improve speed to market
- Focus to provide best in class accuracy and reliability in driver attention state
  - Reduce distracted driver accidents
  - Safe Hand-off wheel operation







SHB FUTURE CAR

2/22/2018

ZENUITY INTRODUCTION

- First time a leading premium car maker has joined forces with a tier one supplier to develop new advanced driver assist systems (ADAS) and autonomous driving (AD) technologies.
- Automotive Safety is part of both companies DNA – with a broad range of expertise and experience.
- This DNA combined with the new spirit of Zenuity is unique.

ZENUITY EMPLOYEES

500

Safety Experience Resource Power

ZENUITY

SPIRIT

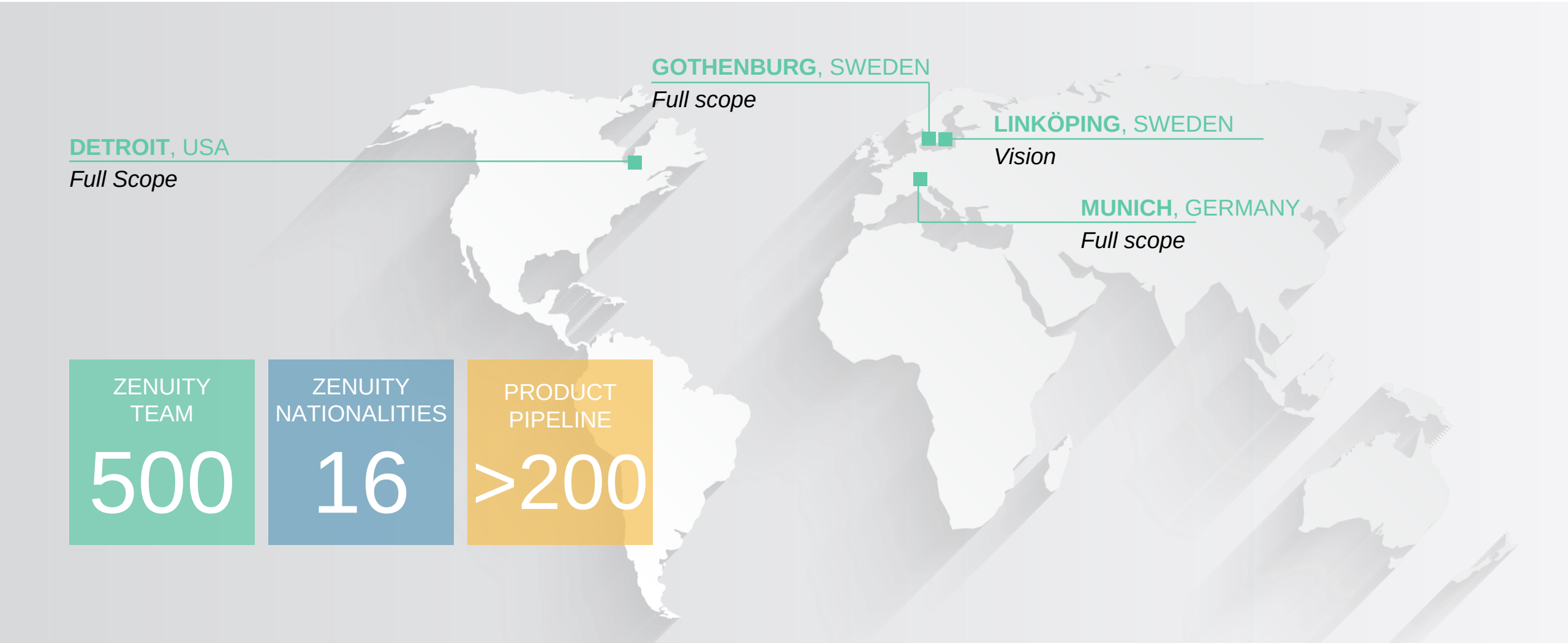
EXPERTISE

COMMITMENT

ZENUITY WAY TO MARKET

Developing automotive driver assistance & autonomous driving software, direction hardware-agnostic

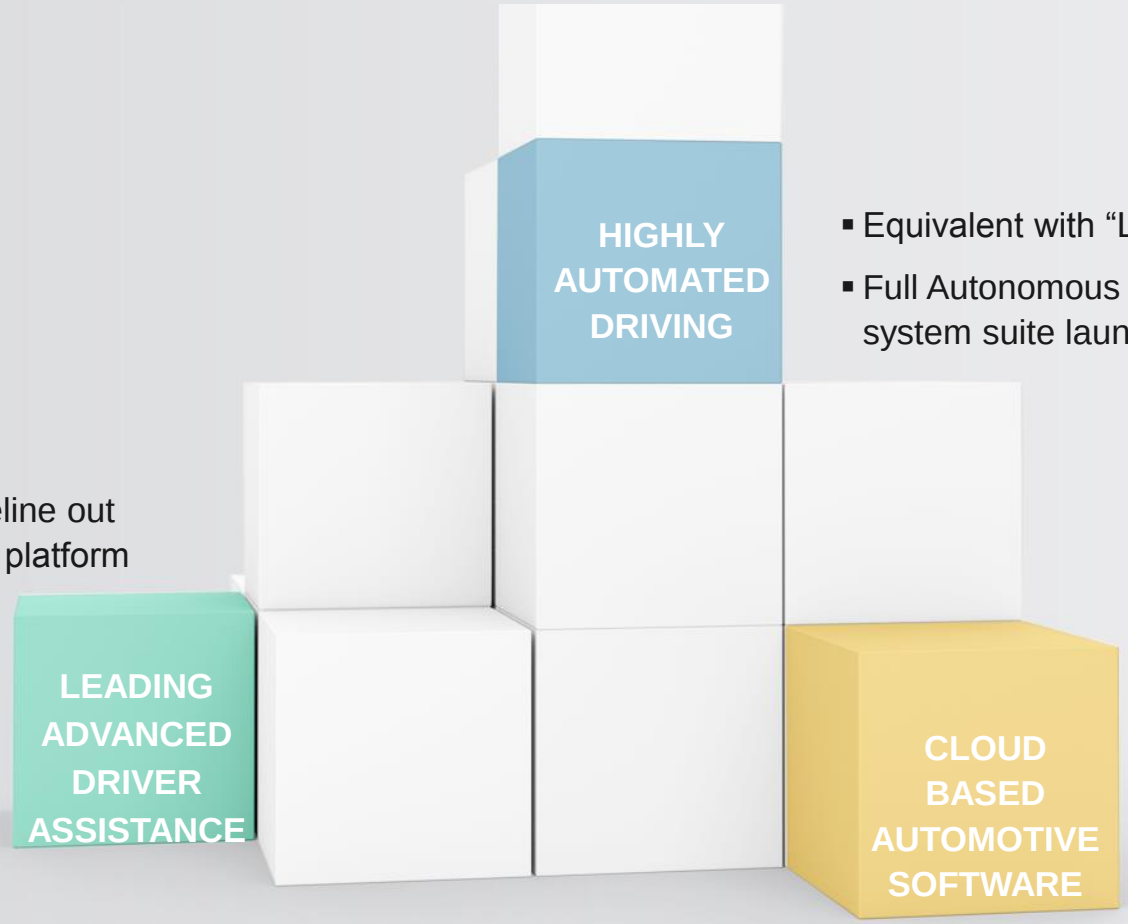
Zenuity today



ZENUITY TEAM	ZENUITY NATIONALITIES	PRODUCT PIPELINE
500	16	>200

WHERE IS ZENUITY NOW?

Product Overview



- Production ready baseline out of today‘s Volvo XC90 platform
- Enhanced and additional features to launch 2019

- Equivalent with “Level 4+”
- Full Autonomous Driving system suite launched 2021

- Starting with “Road friction indication”
- Include V2X and holistic path planning

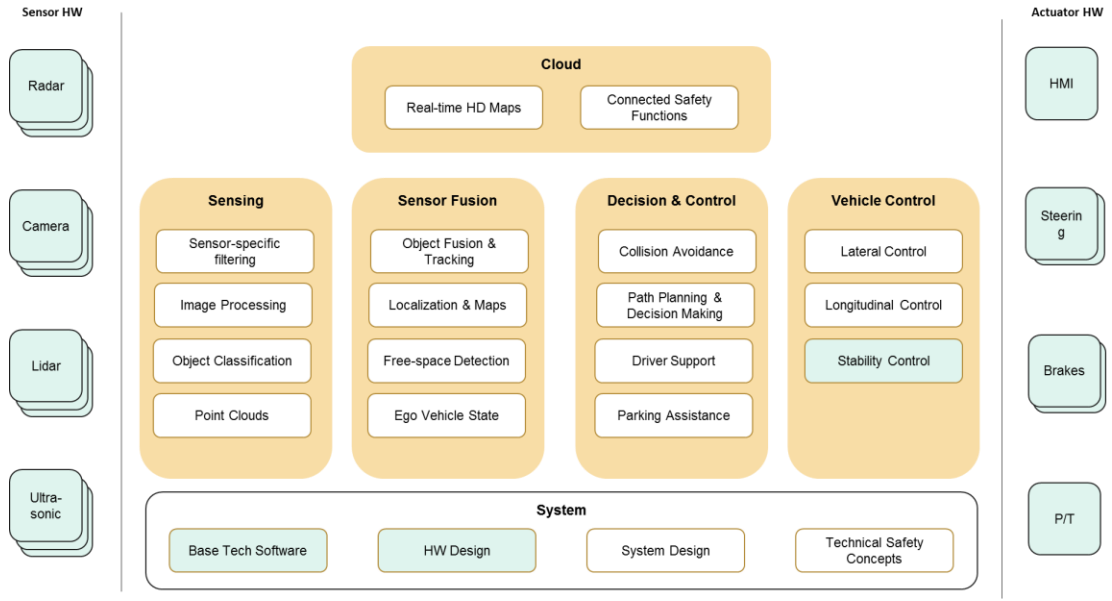
System offering from sensors to actuators

Hardware-agnostic, driving standardization

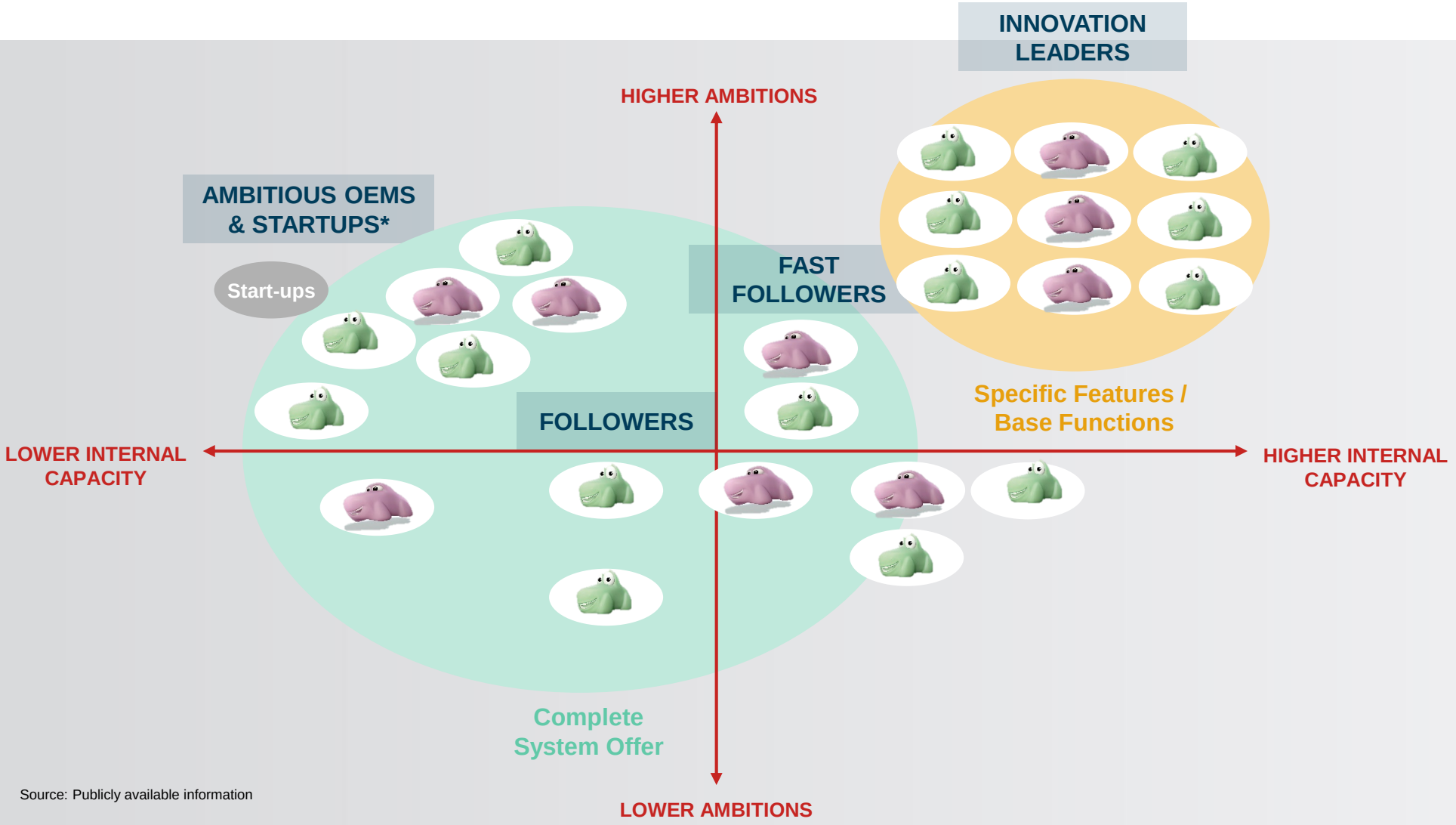
Real-life safety based

ZENUITY – *the technology*

- **World-class driver-assistance**
  - Concrete ADAS offer in production now
  - More than 200 designed customer features
- **Self-driving technologies**
  - Complete, from raw sensor data to vehicle actuators
  - Volvo Drive-Me as development platform
  - Deep learning integration demonstrated
  - Automotive graded commercialization
  - Connected safety in cloud
- **Establishing an eco-system**
  - Tier1, OEM, Chipset AI, Cloud, Off-shore engineering, Map provider, Urban robotics, …



OEM TARGET MARKET



Source: Publicly available information

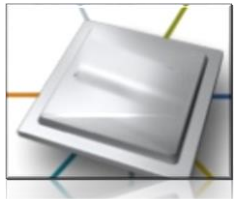
- **INNOVATION LEADERS**
  Want a supplier that can help them to deliver basic functions or develop non core features
- **AMBITIOUS OEMS & STARTUPS***
  Want comprehensive support to outpace the current innovation leaders
- **FAST FOLLOWERS**
  Want support to be seen as on par with innovation leaders
- **FOLLOWERS**
  Want to get to an acceptable level with a basic AD platform and the potential to add differentiating features

Advancements in Vision technologies

Autoliv Vision Roadmap ADAS to AD

Road Boundary

HW Acceleration



Deep Learning

- Introduction of new Gen 5 vision processor -> 5x-8x (1-box), 10x-15x (2-box)
- New, advanced DNN algorithms
- Capacity for more ADAS functionality, scalable to HAD 1x – 8x cameras
- High resolution -> 2.4x – 4.7x
- Improved optical components -> 1.2x
- Increased detection range and accuracy -> >2x detection distance
- EUNCAP 2022 -> handles more complex scenarios

MVS2

SVS2

Scalable Vision System

GVP3

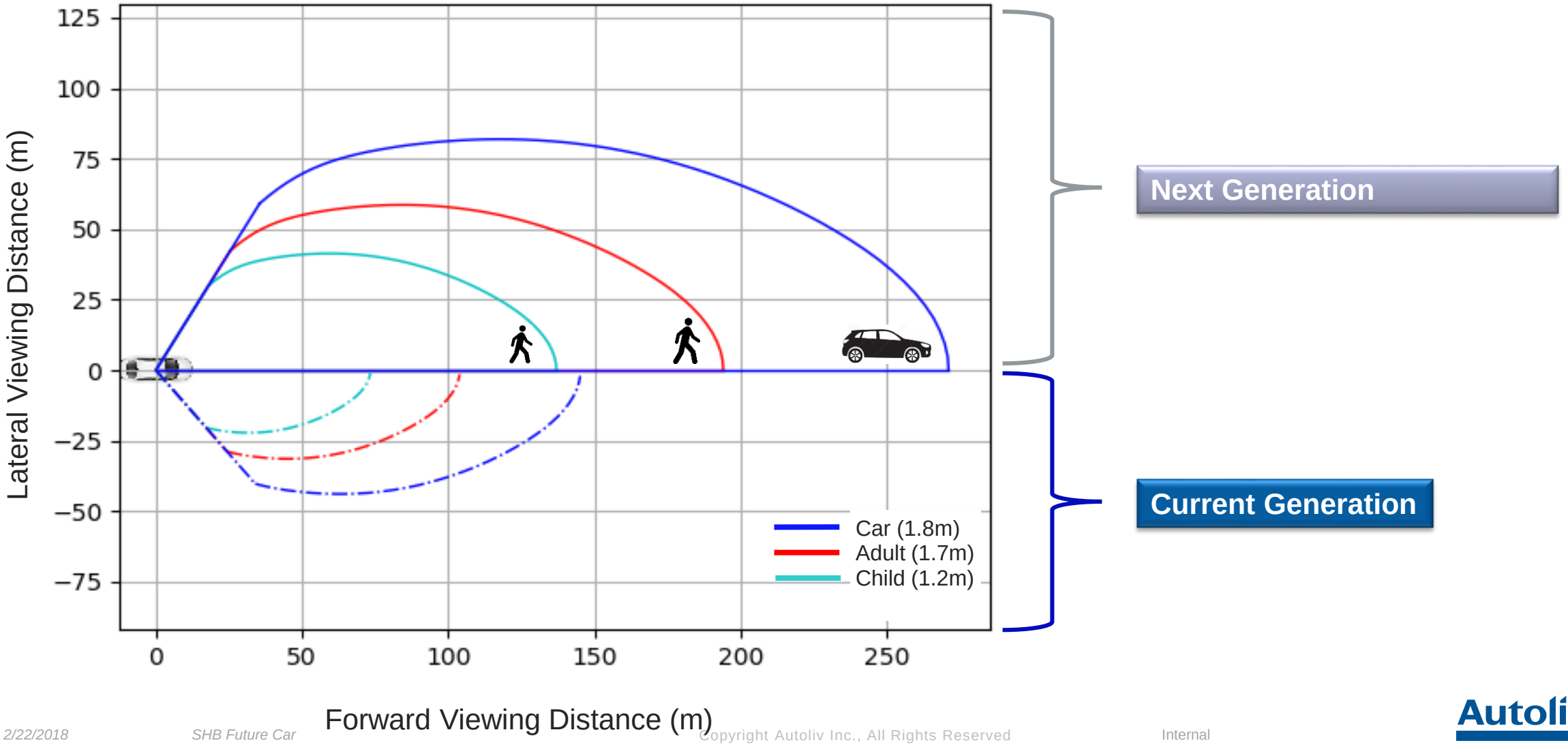
Advanced processing : **Support Automated Driving and NCAP 2020**

MonoVision Innovation : **Cost efficient solution to meet NCAP 2018**

GVP2

Best in class stereo vision : **Autoliv algorithm development of mono and stereo vision**

Detection Distance Overview




Each year, Autoliv's products save over 30,000 lives
autoliv.com
Autoliv