# **Investor Conferences** Post Q4'17 Earnings Result – Miami

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All forwardlooking statements, including without limitation, 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 statements related to the completion and timing of the proposed spin-off, the estimated project costs and tax costs associated with the separation and spin-off, the future performance of the Passive Safety and Electronics businesses on a stand-alone basis if the spin-off is completed, the outlook for Passive Safety and Electronics as separate businesses if the spin-off is completed, the expected strategic, operational and competitive benefits of the proposed spin-off and the effect of the separation on Autoliv and its stakeholders, or financial results, are based upon our current expectations, various assumptions and/or data available from third parties. 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(\*) Non-US GAAP reconciliations are disclosed in our regulatory filings available at www.sec.gov or www.autoliv.com



# FY'17 Recap

Strong performance even with increased RD&E investments for long-term growth

#### Growth and Margins

- Record sales as a result of consolidated sales growth of ~3% where of organic sales\* growth ~1.5%
- Record gross profit resulting in an 8.6% adjusted operating margin\* where RD&E was 7.1% of sales
- Record order intake in both segments supports organic sales targets
- Adjusted EPS\* \$6.58

#### Capital Structure

- Operating cash flow ~\$936M, RoCE\* ~19% and RoE\* ~14%
- Shareholder returns ~\$366M with a leverage ratio\* of 0.5 times

#### Company transformation continues

- Improving operating efficiencies and operating leverage on organics sales growth and vertical integration in Passive Safety
- Closed "Zenuity" software Joint Venture with VCC\*\* in April'17, one LiDAR acquisition and eight new technology collaborations
- Announced the intention to spin-off the Electronics business as a standalone entity during Q3'18

#### Several technology collaborations established during 2017 improved our underlying market position in both segments for the long-term

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters, separation of our business segments and Goodwill impairment, Return on Capital Employed (RoCE), Return on Equity (RoE), Earnings per Share (EPS), (\*\*) Volvo Car Corporation (VCC).



# FY'17 Recap - Strategic Review Process Concluded

Prepare for next steps for "Tax-free Spin-off" of Electronics Business during Q3'18

#### Both entities will be US companies with HQ\* in Stockholm

- Dual listings on the stock market in the US (primary listing) and Sweden
- RemainCo (Passive Safety) to retain the name Autoliv
- SpinCo (Electronics) to be named Veoneer

#### Cost summary

- Separation costs are expected to be up to \$70M (excluded from adjusted operating income)
- Tax related costs resulting from the separation of the legal entities in preparation for the spin-off are estimated to be up to \$80M during H1'18
- For Autoliv (Passive Safety), as a standalone company, the re-allocation of costs will positively impact its operating margin by less than one pp\*\*
- For Veoneer (Electronics), as a stand-alone company, the re-allocation of costs including additional costs as a standalone entity will negatively impact the operating margin by a few pp's\*\*



#### The underlying objective is to provide greater value to stakeholders by allowing the two entities to maximize their long-term potential on their own

(\*) Headquarters (HQ), (\*\*) percentage points includes additional costs related to standalone entities.



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

# Technology Collaborations and Acquisition Recently announced

ADIENT

SEATING EXPERTISE Collaboration in the areas of safety, comfort and convenience of future cars

<b>seeing</b> machines	Velodyne LiDAR°	AGELAB	FOTONIC	
DRIVER MONITORING Collaboration to develop driver monitoring systems	<b>LiDAR</b> Volume production of automotive grade LiDAR systems	HUMAN CENTERED AI* EXPERTISE Collaboration to support LIV "Learning Intelligent Vehicle"	<b>OPTICS EXPERTISE**</b> Acquisition in the product area of LiDAR and Time of Flight Cameras	
тоттот	ERICSSON	MobilityXI ab	<mark> NVIDIA</mark> .	
<b>HD MAPPING</b> Collaboration with Zenuity to develop Path Planning	<b>CLOUD SOLUTIONS</b> Collaboration with Zenuity to develop Connected Cloud	INNOVATION CONSORTIUM Collaborating with start-ups to develop and demonstrate safer and more efficient transportation for tomorrow's world	<b>COMPUTING PLATFORM</b> Collaborate on AI computing platform	

Expanding our capabilities in secular growth trends through a blend of collaborations and acquisition

(\*) Artificial Intelligence (AI), (\*\*) the acquisition is pending and subject to customary closing conditions.



# FY'17 Recap

# Strong order intake in both segments



#### Since 2010 RD&E, net cost has more than doubled and has increased by more than 200 bps to support organic sales\*\* growth targets

(\*) \$ value represents expected average annualized sales from respective years order intake, disclosure of orders will not be made regularly, based on when the orders were awarded, (\*\*) Non-US GAAP measure.



# FY'17 Recap

# Active Safety and Zenuity Update

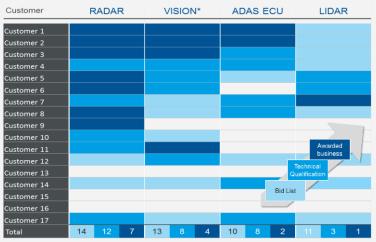
#### Active Safety

- Strong order intake in FY'17, estimated market share in the "high teens"
- Order intake includes a 4<sup>th</sup> vision customer and our 1<sup>st</sup> LiDAR and ROADSCAPE customers
- Temporary lower growth in FY'17-18 due to lower order intake in FY'14-15
- 8 major new program launches planned in FY'19

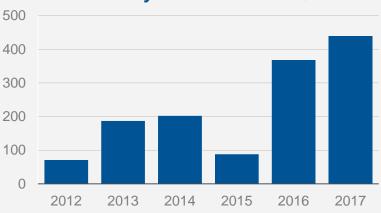
## Zenuity

- FY'17 ~500 employees and consultants
- ALV net cost \$31M for FY'17, current quarterly run rate ~\$15M
- Autoliv's ADAS\*\* system, with Zenuity software stack, field testing in progress ahead of 2019 launch
- Level 4 vehicles running daily tests with AD\*\* highway pilot capabilities
- Discussions underway with 6 OEM's

#### Customer\*\* Snapshot – Dec'17



#### Active Safety Order Intake\* US\$ Millions



#### Active Safety order intake during the last two years has increased substantially due to the expansion of our product portfolio in 2015

(\*) \$ value represents expected average annualized sales from respective years order intake, disclosure of orders will not be made regularly, Vision based on Autoliv developed algorithms, (\*\*) Customers representing >90% of the light vehicle production, Advanced Driver Assist Systems (ADAS), Autonomous Driving (AD).



# **Q4'17 Highlights**

Strengthening our market position and preparing for our step-up in growth

#### Financial Performance

- Organic Sales\* growth 1.1%, slightly better than guidance and LVP\*\*
- Adjusted Operating Margin\* 9.6%, better than guidance
- Adjusted EPS\* \$2.03, ~19% increase YoY

#### Capital Structure

- Operating cash flow \$389M, returned \$52M in dividends to shareholders
- Leverage ratio\* 0.5 times, RoCE\* ~21%, RoE\* ~16%

### Positioning for Long-Term Growth

- Improving operating leverage on gross margin while investing in RD&E for growth opportunities
  - FY'17 Gross Margin 20.7% and RD&E, net 7.1% of sales
- Product Portfolio:
  - New Technology collaborations (Zenuity and TomTom), vision, LiDAR and ROADSCAPE orders with new customers

#### Exceeded our adjusted Operating Margin and Organic Sales growth guidance resulting in a strong adjusted EPS

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters, separation of our business segments and Goodwill impairment, Earnings per share (EPS), Return on Capital Employed (RoCE), Return on Equity (RoE), (\*\*) Global Light Vehicle Production (LVP) according to IHS @ January 16, 2018.



# **Q4 Financial Overview**

Record sales, gross profit and operating cash flow for any quarter

(US \$ Millions unless specified)	2017	2016
Sales	\$2,729	\$2,604
Gross Profit	<b>\$567</b> 20.8%	<b>\$534</b> 20.5%
Operating Income*	\$263 9.6%	\$243 9.3%
EPS* (assuming dilution)	\$2.03	\$1.71
RoCE*	21%	23%
RoE*	14%	15%
Operating cash flow	\$389	\$294
Dividend per share	\$0.60	\$0.58
LVP** (Global annual run rate)	~98M	~97M

#### Sales and adjusted Operating Margin both exceeded our guidance

(\*) Non-US GAAP measures exclude costs for capacity alignments and antitrust related matters, Earnings per share (EPS), Return on Capital Employed (RoCE) and Return on Equity (RoE), (\*\*) Light Vehicle Production (LVP) according to IHS @ January 16, 2018.



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# **Operating Income\* and Margin\* Bridge**

Q4'17 vs. Prior Year

Q4'17 vs. Prior Year (30 bps better) 9.6% 9.3% \$243 \$263 Actual OANS Rannaterial ROSE, net polyalo4,17 currency



#### Operating Margin\* of 9.6% includes ~60 bps increase in RD&E, net vs. Prior Year

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters, separation of our business segments and Goodwill impairment.



# **Q4'17 Strong Performing Models**

# Contributing to our overall Organic Sales\* growth



Strong Organic Sales\* growth on these models were mitigated by lower inflator replacements and unfavorable model mix on certain platforms.

(\*) Non-US GAAP measure.



# **Currency Effects\***

# Translation, Transaction and Revaluation

- Translation could have a margin impact due to our mix, as margins may not be evenly distributed across countries
- Transaction exposure, net for FY'17 accounts for approximately 24% of sales and directly impacts on margin
- Revaluation of balance sheet from local currency to US\$

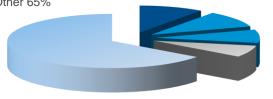
YoY change	<u>Q4'17</u>	<u>FY'17</u>
Sales % / \$ (translation only)	3.7% /~97\$M	0.4% / ~\$36M
<b>EBIT reported</b> *(translation + transaction & revaluation)	~\$11M	~\$2M
<b>Bps (EBIT reported)</b> *(translation + transaction & revaluation)	~10	~0
EPS* ((translation + transaction & revaluation)	~\$0.09	~\$(0.22)



#### FY'17 Transaction Exposure, Net ~\$2.5 B

Sell US\$ buy MXN 10%
Sell KRW buy US\$ 8%
Other 65%

Sell US\$ buy CNY 10%Sell TRY buy EUR 7%



#### Indication for FY'18 is a negative transaction effect of ~20 bps which is expected to be offset by positive translation effect on earnings

(\*) Since 2004 Autoliv has adopted a Natural Hedging policy however from time to time the company may enter into forward hedging contracts on certain components, Earnings before Interest & taxes (EBIT), Bps (Basis points), Earnings per Share (EPS).



# **Commodity Price Trends**

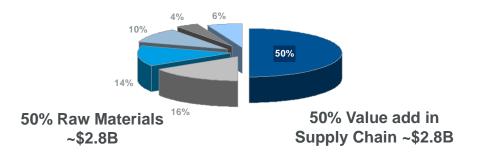
# Raw material cost development

- Autoliv avoids forward hedging contracts against commodity cost changes
- Consequently, Autoliv manages the risk between suppliers and customers
- Lead time effect of changes in commodity costs is generally 3 to 6 months

Commodity (Positive) / Negative YoY Cost Change in US\$ Millions								
Commodity	FY'10	FY'11	FY'12	FY'13	FY'14	FY'15	FY'16	FY'17
Steel	(4)	35	2	(8)	(9)	(17)	(12)	18
Non-Ferrous	18	8	(2)	0	(1)	0	0	16
Plastic & Yarn	4	47	7	(11)	(14)	(31)	(19)	(4)
Other	<u>0</u>	<u>5</u>	<u>(1)</u>	<u>(4)</u>	<u>5</u>	<u>8</u>	<u>(2)</u>	<u>0</u>
TOTAL	18	95	6	(23)	(19)	(40)	(33)	30

# FY'17 Direct Material ~54% of sales or ~\$5.6B







# **China Update**

Q4'17 light vehicle production reached ~31.8 million annual run-rate

#### Market

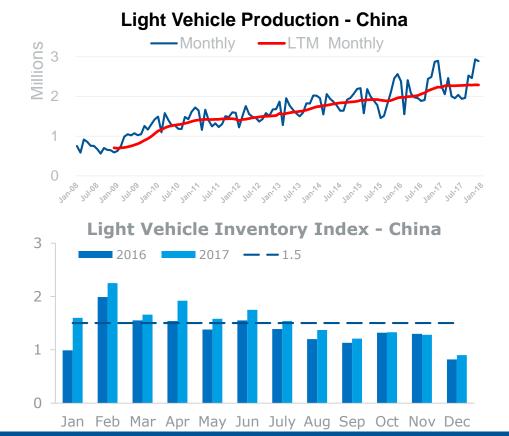
- Q4'17 LVP\*\* decrease YoY ~1%
  - Driven by domestic OEMs\*\*
- Monthly fluctuations remain erratic
- LV Inventories\*\* decreased during Q4'17

#### NCAP\*\* Ratings

- Implementation from 1st of July, 2018
  - Improved rear-seat, side and Pedestrian protection
  - Adding a new level with a +5-star rating
  - Active safety and AEB is required for a rating of 4-stars or higher

#### Autoliv

- Organic sales\* growth in Q4'17 ~4%, mainly due to global OEMs
- FY'17 Organic sales growth ~4% driven is mainly driven by global OEMs



We remain confident in our long-term growth prospects for China due to Content per Vehicle opportunities in both Active and Passive Safety

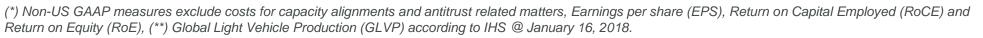
(\*) Non US GAAP measure, (\*\*) Light vehicle production (LVP) according to IHS @ January 16, 2018, Original Equipment Manufacturer's (OEMs), According to CAAM/CADA, New Car Assessment program (NCAP), Automated Emergency Braking (AEB).



# **FY Financial Overview**

# Record sales, gross profit and operating cash flow

(US \$ Millions unless specified)	2017	7	2016	6
Sales	\$10,383		\$10,074	
Gross Profit	\$2,149	20.7%	\$2,057	20.4%
Operating Income*	\$892	8.6%	\$885	8.8%
EPS* (assuming dilution)	\$6.58		\$6.75	
RoCE*	19%		21%	
RoE*	13%		15%	
Operating cash flow	\$936		\$868	
Dividend per share	\$2.38		\$2.30	
GLVP** (annual run rate)	~92M		~90M	



# **FY Segment Reporting**

Strong operational performance in Passive Safety driving group profitability

	Organic Sales*	rganic Sales* Sales (US\$ Millions) Operating Margin (%)		CapEx (%)		<b>D&amp;A</b> (%)		Headcount			
	Growth (%)	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016
Passive Safety ***	2.2%	8,135	7,919	10.2	10.3	5.7	5.0	3.7	3.5	64,111	63,134
Airbags (incl. Steering Wheels)	1.3%										
<ul> <li>Seatbelts</li> </ul>	4.0%										
Electronics ***	(0.5)%	2,322	2,216	(7.8)	2.8	4.7	4.6	4.8	4.3	7,484	6,778
<ul> <li>Restraint Control Systems</li> </ul>	(3.4)%										
<ul> <li>Active Safety</li> </ul>	5.1%										
<ul> <li>Brake Systems</li> </ul>	(6.2)%										
Autoliv	1.5%	10,383	10,074	5.8	8.4	5.6	5.0	4.1	3.8	72,034	70,293
LVP ** (Global)	2.2%										

#### Non-cash, one time Goodwill impairment charge of ~\$100M to net income (~\$234M operating income) related to ANBS\* during Q4'17

(\*) Non-US GAAP measure, (\*\*) Light Vehicle Production (LVP) according to IHS @ January 16, 2018, Autoliv Nissin Brake Systems (ANBS), (\*\*\*) Segment reporting, organic growth refers to net sales for the segments and external sales for product groups.

# **Cash Flow**

## Investments for growth and shareholder returns

(US \$ Millions unless specified)	Q4'17	Q4'16	2017	2016	2015	2014	2013	2012
Net Income	(56)	144	303	562	458	469	490	486
Depreciation & Amortization***	341	104	660	383	319	305	286	273
Other, net	(4)	(16)	(27)	1	0	42	43	10
Change in operating WC*	108	62	(0)	(78)	(26)	(103)	19	(80)
Operating cash flow	389	294	936	868	751	713	838	689
Capital Expenditures, net	(168)	(159)	(570)	(499)	(450)	(453)	(379)	(360)
Free cash flow**	221	135	366	369	301	260	459	329
Acquisitions, net	14	0	124	227	128	(1)	2	(3)
Dividends paid	52	51	209	203	196	195	191	178
Shares repurchased	0	0	157	0	104	616	148	0

#### Acquisitions and CapEx for growth along with Shareholder returns are ~\$1.1B during FY'17

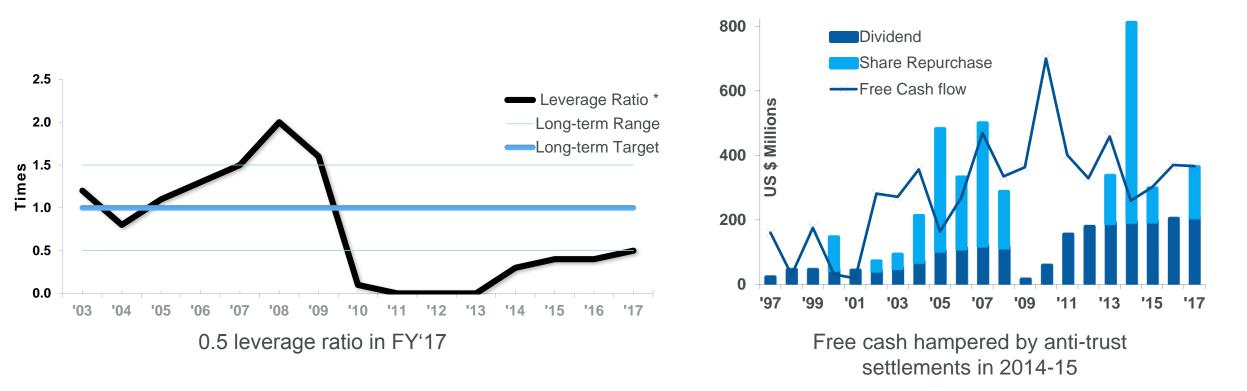
(\*) Non-US GAAP measure, (\*\*) Non-US GAAP measure, before acquisitions, reconciliation of free cash flow is provided above. (\*\*\*) Includes Goodwill impairment related to the ANBS JV in Q4'17 and 2017.



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# **Capital Structure**

## Debt limitation policy and shareholder returns



#### More than two-thirds of our Free Cash flow has been returned to shareholders since 1997

(\*) Cash flow before financing

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# FY'18 - Looking ahead

# Executing towards the targets of the standalone businesses

#### The Spin next steps

- H1'18 → Disclose recast historical figures (2015, 2016, 2017) for new standalone entities, Form 10 filing,
  - → Host Analyst Days and Deal Roadshows in the US and Europe for standalone entities ahead of the spin-off
- Q3'18 → Standalone entities commence trading

#### Electronics

- Organic sales decline ~3% where of AS\*\* organic sales growth similar to 2017, currency translation tailwind ~3%
- Underlying profitability to decline from 2017 mainly due to increased RD&E costs net
- Focus on readiness for new launches in 2019 and securing 2022 sales targets

### Passive Safety

- Organic sales\* growth >10%, ~5 times better than LVP\*\*, currency translation tailwind ~4%
- Underlying profitability to improve from 2017 due to organic sales operating leverage
- Flawless execution of launches while maintaining flexibility to adapt to underlying market fluctuations and uncertainties

#### Autoliv group FY'18 indication is for organic sales growth of >7%, consolidated sales, net growth >11% and an operating margin\* of ~9%

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters and separation of our business segments, (\*\*) Light Vehicle Production (LVP) according to IHS @ January 16, 2018, Active Safety (AS).

# FY'18 - Key Models in Passive Safety

# Contributing to the ramp-up of our expected organic sales\* growth



These models are anticipated to contribute ~\$500M towards the expected Passive Safety Organic Sales\* growth of >10% in FY'18

(\*) Non-US GAAP measure.



# **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)





# **Overall Market Conditions**

# Major light vehicle markets remain mixed and uncertain

#### Asia

- China inventories\*\* declined during FY17 to relatively low levels
- The Q1'18 LVP\* is expected to decline YoY\* in China ~4% while the LVP in Japan and RoA is expected to increase ~2% and 1% respectively

#### Americas

- US SAAR\*\* remains relatively high while inventories declined during Q4'17 to ~3.7M vehicles (~61 days)
- US consumer confidence remains strong
- Q1'18 LVP in North America is expected to increase ~1% YoY while South America continues to recover and is expected to increase ~15% YoY

#### Europe

- EU27\*\* FY'17 vehicle registrations approaching "pre-crisis" levels while LVP set a new record
- Q1'18 LVP in Europe is expected to increase ~2% YoY whereof WEU\* is expected to increase ~2% and EEU\* is expected to increase ~3%

FY 2018 LVP*							
Region	Millions of Vehicles	YoY Chg. @ Jan 16					
China	26.8	1%					
Japan	8.7	(3)%					
RoA*	13.1	4%					
North America	16.3	2%					
South America	3.7	13%					
Europe	22.6	2%					
Global	94.0	2.0%					



#### In Q1'18 the global LVP\* is expected to increase ~0.5% YoY\*, however decline sequentially by ~3% from Q4'17

(\*) Light Vehicle Production (LVP) according to IHS @ January 16, 2018, Year over Year (YoY), Rest of Asia (RoA), Western Europe (WEU), Eastern Europe (EEU), Last Twelve Months (LTM), (\*\*) Source: ACEA, Ward's Auto, CAAM.



# **Q1 Light Vehicle Production**

	204.9	2047	2018 vs. 2	2017 (%)	ALV Organic**
Vehicles in millions	2018	2017	@ Jan 16 <sup>th</sup>	@ Oct 17 <sup>th</sup>	Sales Growth (%)
Americas	5.1	4.9	3	4	
<ul> <li>North America</li> </ul>	4.3	4.2	1	2	
<ul> <li>South America</li> </ul>	0.8	0.7	15	13	
Europe	6.0	5.8	2	2	
<ul> <li>WEU</li> </ul>	4.0	3.9	2	4	
EEU	2.0	1.9	2	0	
Asia	12.0	12.2	(1)	(1)	
<ul> <li>Japan</li> </ul>	2.4	2.4	2	0	
<ul> <li>China</li> </ul>	6.3	6.6	(4)	(3)	
■ RoA	3.3	3.2	1	2	
Other*	0.6	0.7	2	(1)	
Total Global	23.7M	23.6M	0.4%	0.7%	<1%

Source: IHS Light Vehicle Production (LVP) @ January 16, 2018 and October 17, 2017, (\*) Middle East/ Africa, (\*\*) Non US GAAP, as of January 30, 2018.



# **FY'18 Light Vehicle Production**

Vehicles in millions <b>2018</b>		2017	2018 vs. 2	2017 (%)	ALV Organic**
venicies in millions	2010	2017	@ Jan 16 <sup>th</sup>	@ Oct 17 <sup>th</sup>	Sales Growth (%)
Americas	20.0	19.2	4	4	
<ul> <li>North America</li> </ul>	16.3	15.9	2	3	
<ul> <li>South America</li> </ul>	3.7	3.3	13	11	
Europe	22.6	22.2	2	2	
<ul> <li>WEU</li> </ul>	15.0	14.8	1	2	
EEU	7.6	7.4	3	1	
Asia	48.6	48.2	1	0	
<ul> <li>Japan</li> </ul>	8.7	9.0	(3)	(4)	
<ul> <li>China</li> </ul>	26.8	26.6	1	1	
■ RoA	13.1	12.6	4	3	
Other*	2.8	2.5	10	6	
Total Global	94.0M	92.1M	2.0%	1.7%	>7%

Source: IHS Light Vehicle Production (LVP) @ January 16, 2018 and October 17, 2017, (\*) Middle East/ Africa, (\*\*) Non US GAAP, as of January 30, 2018.



# Looking Ahead

Q1'18 Guidance

#### Sales

- Organic Sales\* growth <1% YoY\*\*
  - Strong growth in Thailand and India, South America and Japan is partially offset by a decline in Europe, South Korea and China
- Currency translation >6% YoY
  - Mainly due to the weakening of the US\$ during 2017

#### Operating Margin\* ~9%

- YoY
  - Improved operating efficiencies on gross margin are partially offset by higher RD&E and the negative impact from currencies
- Sequential
  - Higher consolidated sales considering normal seasonality effects more than offset by higher RD&E

#### Q1'17 Organic Sales growth in Passive Safety is partially offset by Organic Sales decline in Electronics

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters and separation of our business segments, as of January 30, 2018, (\*\*) Year over Year (YoY).



# **Looking Ahead**

FY'18 Indication

#### Sales

- Organic Sales\* growth >7% YoY\*\*
  - Mainly related to strong growth in all major regions including Active Safety which is partially offset by South Korea and lower Restraint Controls and Brake Systems
- Currency translation ~4% YoY
  - Mainly due to the continued weakening of the US\$

#### Operating Margin\* ~9%

- YoY
  - Positive effect from organic sales growth in Passive Safety and improved operating efficiencies are partially offset by the negative impact from higher RD&E in Electronics and currencies

#### Initial indication for FY'18 is strong Organic Sales growth to resume due to Passive and Active Safety with an improving Operating Margin

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters and separation of our business segments, as of January 30, 2018, (\*\*) Year over Year (YoY).



# **Financial Outlook**

# Consolidated sales, net and operating margin\* initial FY indication

ALV Group	Q1'18	FY'18	Segments FY'18
Sales			Sales
Organic*	<1%	>7%	Organic*
Acquisitions	-	-	Acquisitions
Fx**	>6%	~4%	Fx**
Consolidated Sales, net	>7%	>11%	Consolidated Sales, r
<b>Operating Margin*</b>	~9%	~9%	Underlying Profitabili

Segments FY'18	Passive Safety	Electronics
Sales		
Organic*	>10%	~(3)%
Acquisitions	-	-
Fx**	~4%	~3%
Consolidated Sales, net	>14%	~0%
Underlying Profitability	Increase YoY	Decline YoY

Exchange rates**	Q1'18	FY'18
EUR / US\$	1.2152	1.2199
US\$ / JPY	111.22	110.84
US\$ / KRW	1,063	1,063
US\$ / MXN	19.03	18.94
US\$ / CNY	6.46	6.45

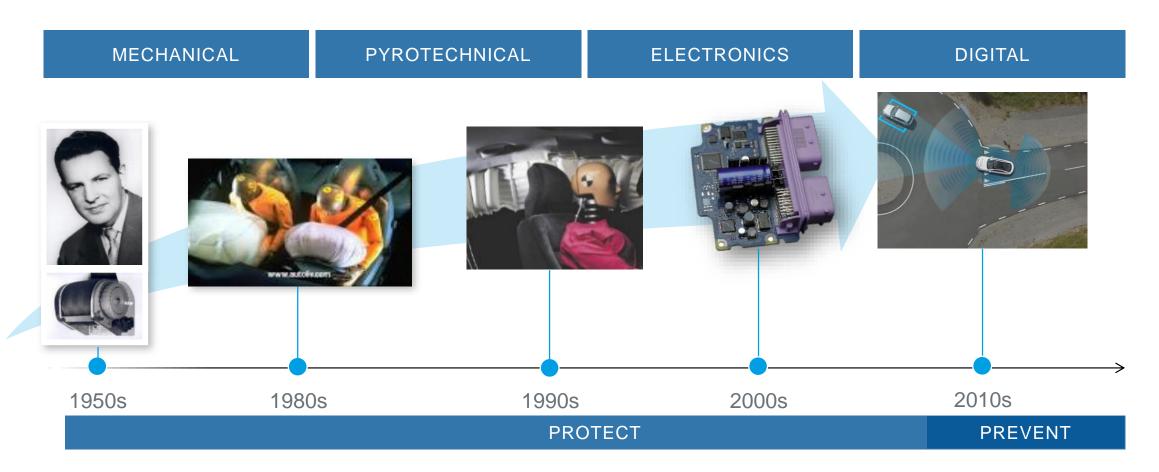
#### For FY'18 strong Organic Sales\* growth of >7% drives improvement in Operating Margin\* to ~9% despite RD&E increases in Electronics

(\*) Non-US GAAP measures exclude costs for capacity alignments, antitrust related matters and separation of our business segments, as of January 30, 2018, (\*\*) Mid-January 2018 exchange rates.



# **Industry Pioneer with Strong Heritage**

More than 60 years of innovation in Automotive Safety

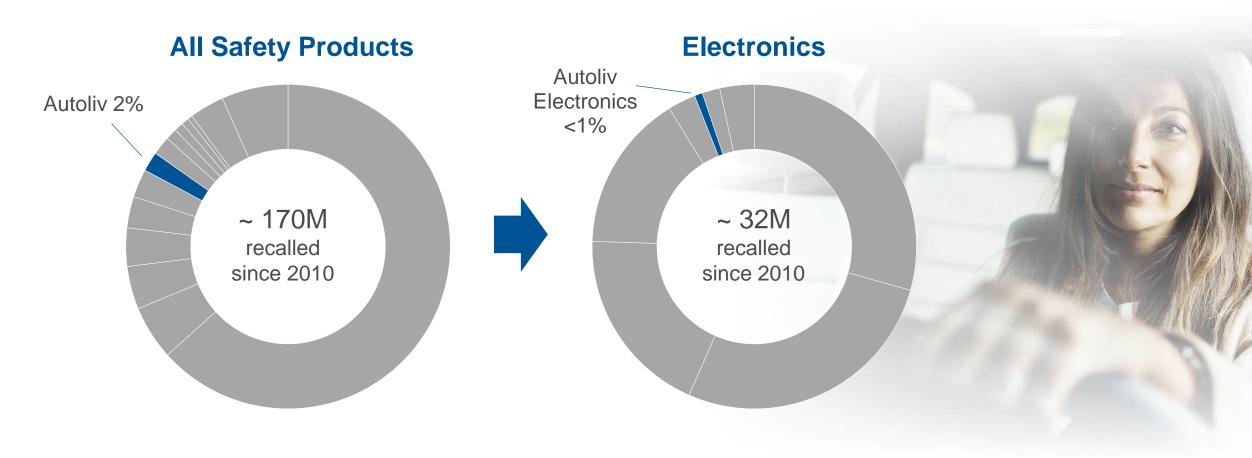




# **Customer Trust**

Q5

Our Passive Safety quality journey extends really well into Electronics



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



# **Targets Stand Alone Passive Safety and Electronics**

CMD 2017 – Target Update

	2020 Target	2022 Target	
Autoliv Passive Safety	<ul> <li>Sales &gt;\$10B</li> <li>Sales CAGR*** ~8%</li> <li>Adj. Operating Margin* ~13%</li> </ul>	<ul> <li>Sales – at least hold market share and at least grow LVP plus 1%</li> <li>Sales CAGR*** ~6%</li> <li>Adj. Operating Margin* – at least maintain margins from 2020 levels</li> </ul>	
Autoliv Electronics	<ul> <li>Sales ~\$3B with AS** &gt;\$1B</li> <li>Sales CAGR*** ~10% where AS is &gt;10% CAGR</li> <li>Adj. Operating Margin* 0-5%</li> </ul>	<ul> <li>Sales ~\$4B with AS** ~\$2B</li> <li>Sales CAGR*** ~12% where AS is ~23% CAGR</li> <li>Adj. Operating Margin* improve vs. 2020</li> </ul>	

(\*) 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.

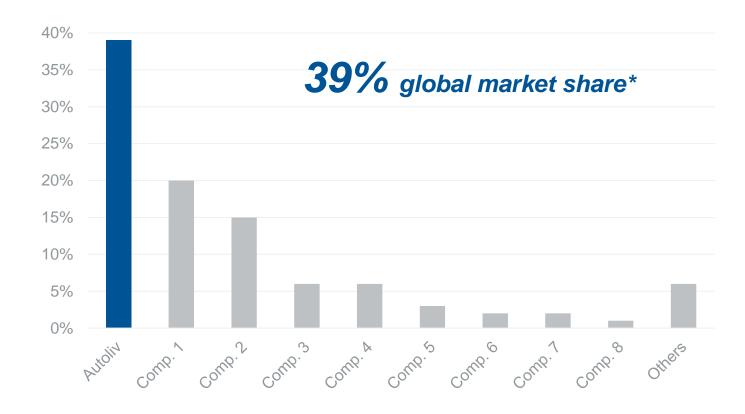


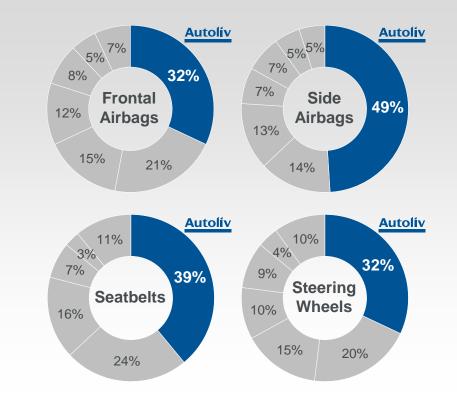
# Passive Safety never in a better position



# **A Winning Business Formula**

Today the global leader in passive safety





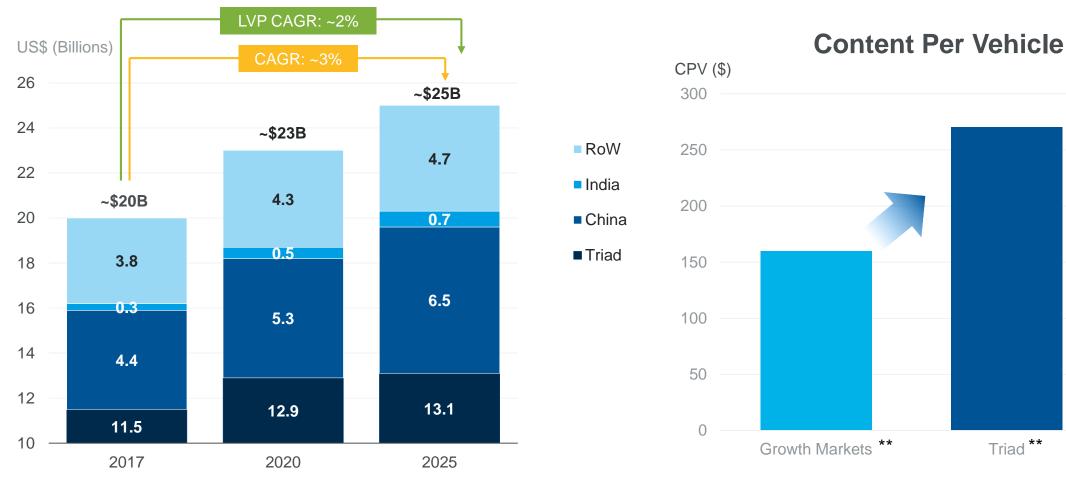
# Serving **1,300** models and **100** car brands

# **Autoliv**

#### (\*) Estimated 2016 Market shares.

# Passive Safety a ~\$25B Market in 2025

Market is expected to grow 1 pp faster than the underlying LVP



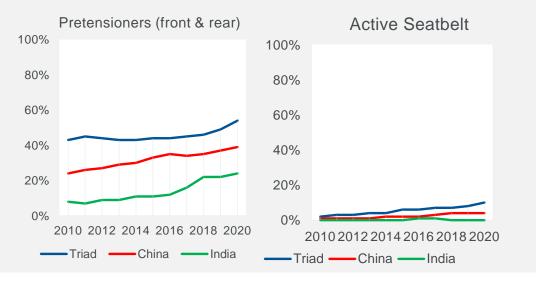
\*Company market estimates. Includes seatbelts, airbags, steering wheels. CAGR = Compound Annual Growth Rate, TAM = Total Addressable Market. \*\* Growth Markets : China, Eastern Europe, India, Southeast Asia, South America and Middle East & Africa. Triad: North America, Western Europe & Japan



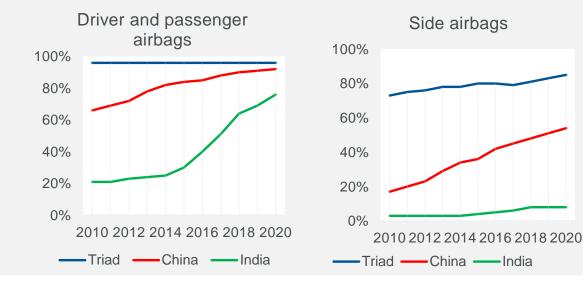
# Passive Safety –

# Installation Rates show long term upside potential

# Continued market potential beyond 2020 from increasing installation rates\*



# Continued market potential beyond 2020 from increasing installation rates\*



(\*) Market installation rates for selected products based on Autoliv internal data in constant currency 2017, CAGR (Compound Annual Growth Rate). (\*\*) Frontal Airbags includes Driver, Passenger and Knee, Side Airbags includes Inflatable Curtains and Thorax.



# Electronics - built for the future



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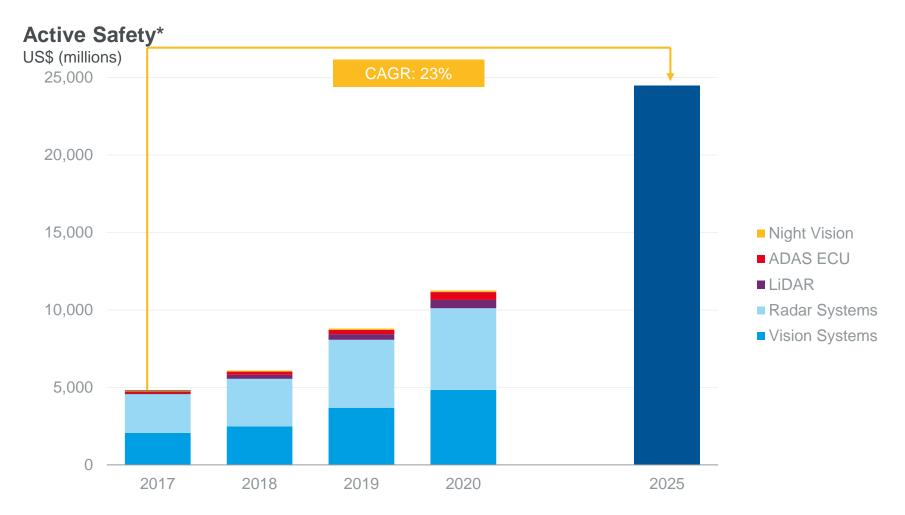
# Electronics ~\$43B Market in 2025

## ~10% CAGR 2017 to 2025



\*) TAM (Total Addressable Market), CAGR (Compound Annual Growth Rate), \*\*) 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 Sensor Market**

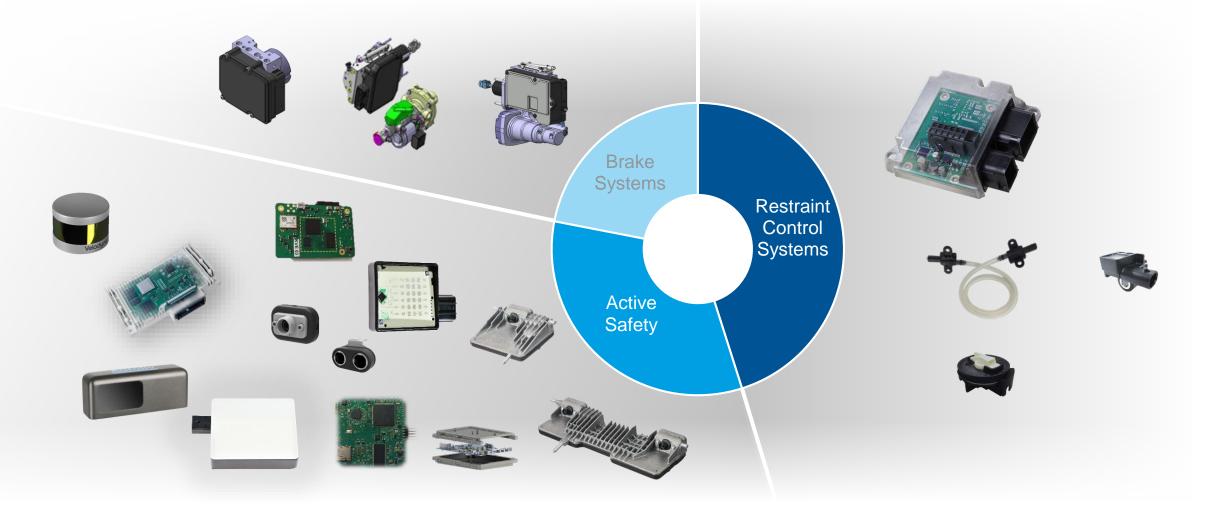


\*) Active Safety Market includes Radar (Front/side/rear), Forward looking Cameras (Mono/Stereo/Night Vision), Other (Advanced Driver Assist Electronic Control Unit, LiDAR).



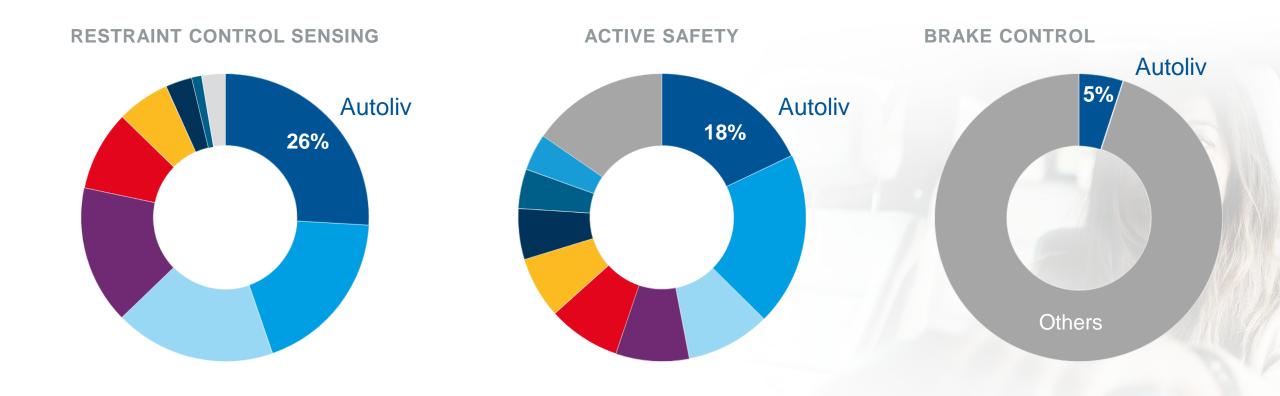
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## **One of the World's broadest Safety Electronics Product Portfolios**





## **Autoliv Electronics – Market Shares 2016**





# **Active Safety – Customer snapshot**

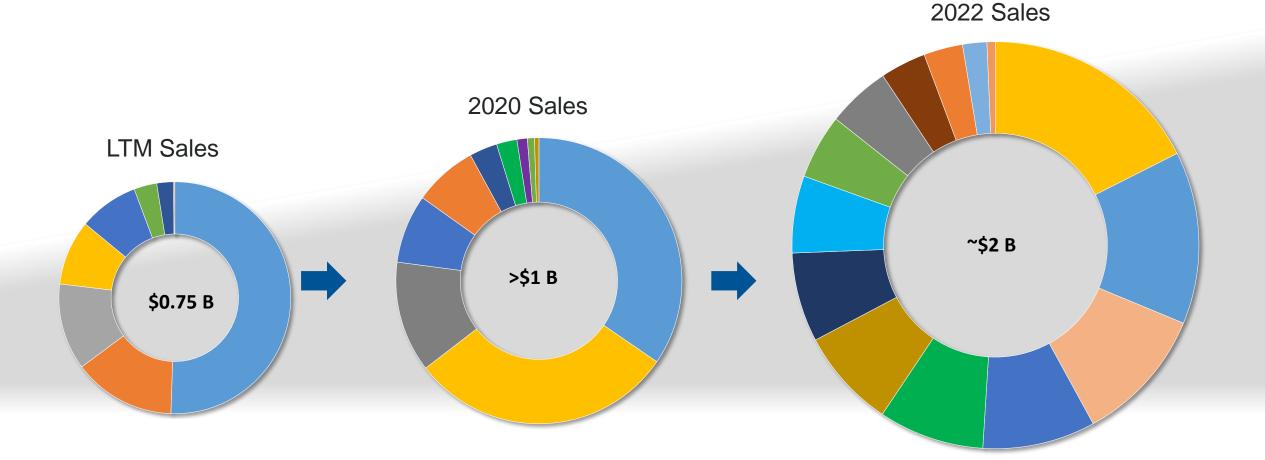
	Customer	F	RADAR	\	/ISION*		AD	AS EC	U	L	.IDAR						
0010	Customer 1																
2013	Customer 2																
	Customer 3																
	Customer 4																
	Customer 5																
	Customer 6																
	Customer 7																
Represents >90%	Customer 8																
of global light	Customer 9																
vehicle production	Customer 10																
,	Customer 11																
	Customer 12																Δ
	Customer 13																Aw bus
	Customer 14														Tech	nior	
	Customer 15														Qualif		
	Customer 16																
	Customer 17													Bid Li	st		
	Total	5	5 5	3	1	1	1	1	1	0	0	0					

\*Vision based on Autoliv developed algorithms,



Awarded business

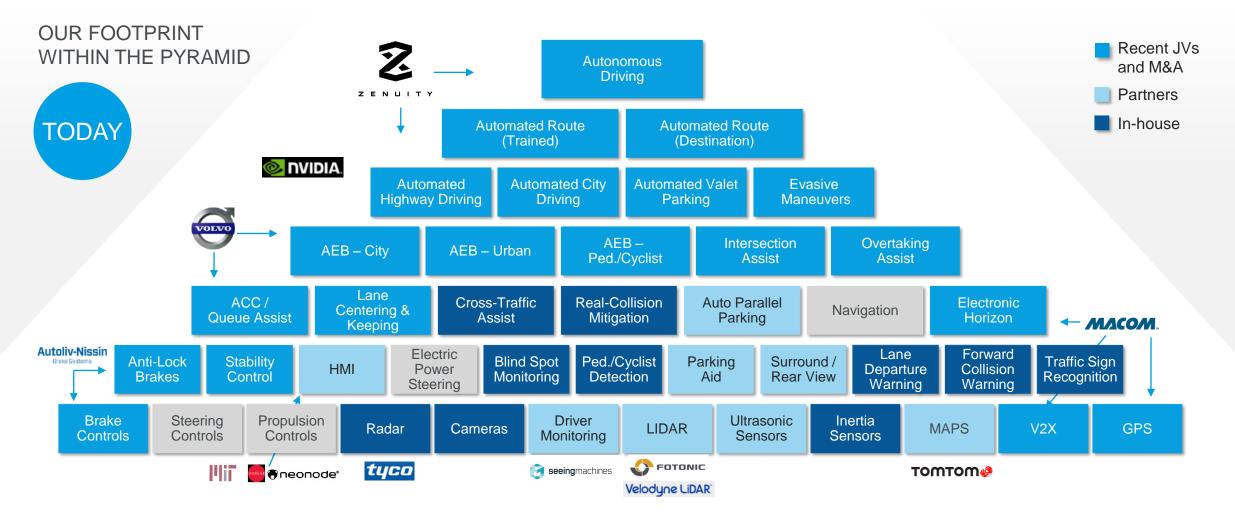
## Active Safety Revenue\* by OEM group



(\*) 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.



# **Electronics Active Safety – Building for the long-term**





# **The Developing Eco-System**

Zenuity provides Sensor Fusion, Decision and Control





# Zenuity – the technology

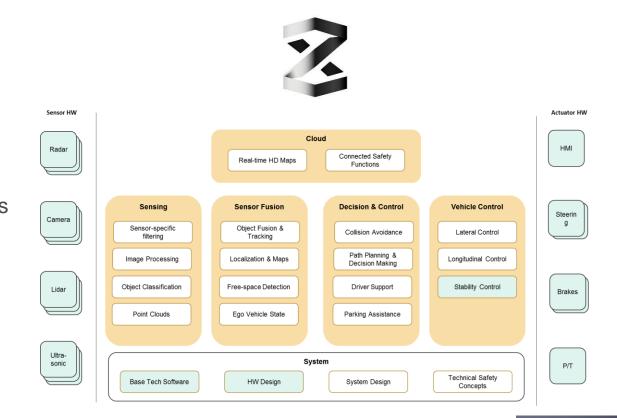
#### World-class driver-assistance

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



AU #Makeitreal

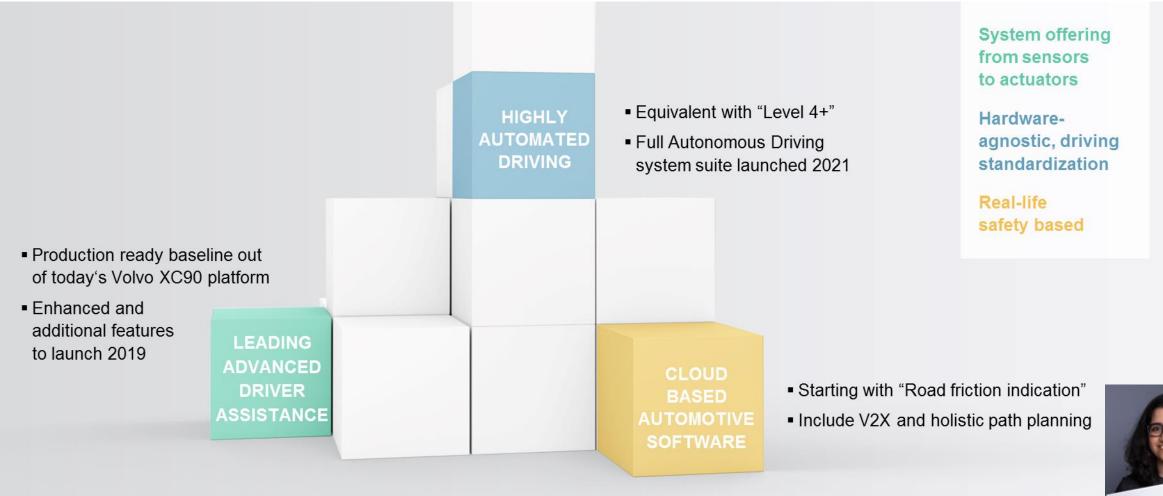
Tier1, OEM, Chipset AI, Cloud, Off-shore engineering, Map provider, Urban robotics, ...





# Zenuity - Where are we now?

## **Products**





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.







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



NCAP Driver Assist Automated Driving support



## 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 (3<sup>rd</sup> Generation)

- Single FIR Camera design
- Animal and Vehicle Detections

#### 2020 Night Vision (4<sup>rd</sup> 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





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





## LiDAR Sensing to Complement Vision and Radar

2018	AUTONOMOUS (L4/5)	UTONOMOUS (L4/5) <b>2021</b> PREMIUM OEMs (L3/4)		<b>2024</b> N		MASS MARKET (L3/4)	2027	
	WAVE 1		WAVE 2		WAVE 3			
Velo	Mobility as Service Drives Market led by New Entrants		Highway Pilot (L3/L4) Vehicle Launches for Traditional Automotive OEM Business				Jne: LiDAR	
	Velodyne LiDAR		Forward Looking, 200m, Complement to Radar + Vision			Success of Mass Market LiDA		
	360° Surround Scan 200m range		elodyne and Autoliv working togeth develop a consumer vehicle LiDA			Dependent on Cost/Performance Evolution vs. Vision and Rada	e	
						<b>Complement</b> or <i>Competito</i> to Vision and/or Radar	or?	



Roadscape – Positioning, Mapping and V2X Connectivity...

## 6<sup>th</sup> 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





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





## Enhancing our Growth and System Capability Autoliv and Nissin Kogyo form a Joint Venture

### Overview

- Closed March 31, 2016
- Strengthens our product portfolio towards autonomous driving

   technology and knowledge in brake control and brake apply
- Manufacturing footprint in Japan, China and US
   includes a workforce ~1,800 associates
- Reported in the Electronics business segment
  - as a 3<sup>rd</sup> product category

## Autoliv Financial Impact

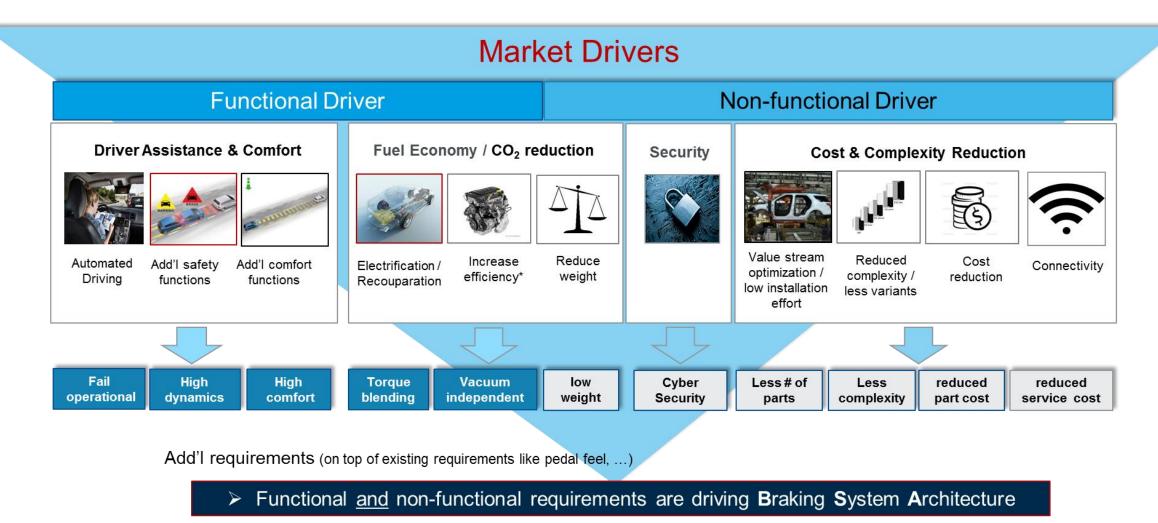
- Purchase Price JPY 29.7 billion (~\$265M) for 51% ownership
   subject to post-closing adjustments
- Consolidation 100% of the Balance Sheet and P&L
- Eliminate 49% of the net earnings (minority interest)
- Included in the FY'16 Indication (as of April 29, 2016)
  - Sales between \$400 to \$450M
  - Integration and Purchase accounting related costs combined \$20 to \$30M



The ANBS JV provides additional building blocks towards Automated Driving



# **ANBS – Autoliv Nissin Brake Systems**

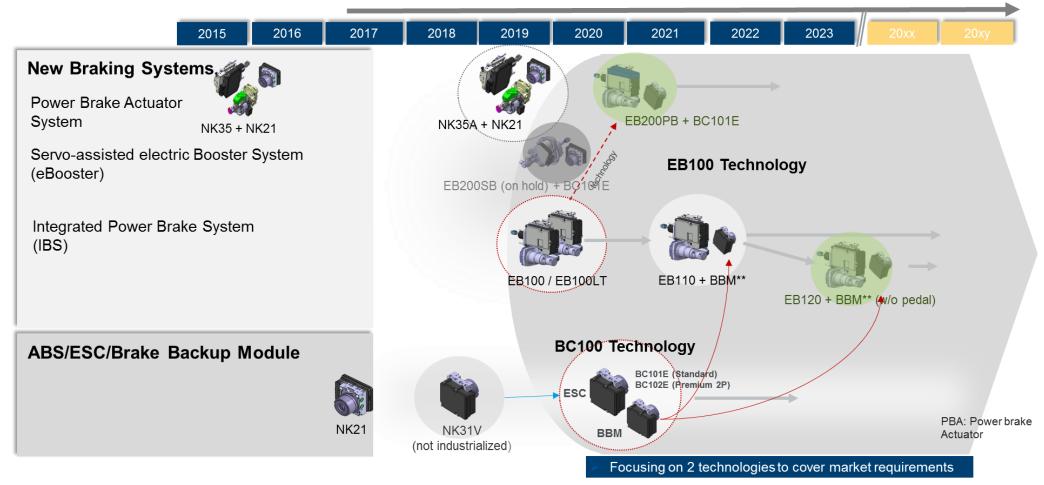


\* e.g no add'l engine component to support, start/stop, coasting w/ engine off, ...



# **ANBS – Autoliv Nissin Brake Systems**

System & Product Roadmap – ANBS Chassis Controls





# **ANBA Building – Findlay, Ohio**

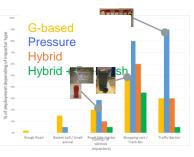


- Lease signed on 10-12-17
- VT will close on property by 10-24-17
- Earthwork will start week of Nov. 6th
- Filter pit will be ready for Henry Filter install Apr. 2018
- Building ready for Grob machines on 8-20-18 & Xigent equipment on 9-15-18
- Full occupancy by 10-15-18





# **Restraint Control Trends**



## Better field performance

by pre-setting crash algorithms before impact - fewer false positives - consumer-desired deployments In Production



#### Safer automated driving

by sharing sensor data and processing power

- Advanced IMU
- Horizon
- Safe stop
- Basic ADAS Concept phase

Value/Cost Optimization



#### **Better positioned occupants**

by restraining or moving them before impact

- motorized seatbelts(EPT)
- seat-mounted pre-crash airbags

#### **In Production**



#### Automated Driving aware

Anticipate occupant movement due to crash avoidance technologies. For real-life and future NCAP with precrash deployment **Under development** 



#### **Tailored Restraints**

For highly automated vehicles using vision-based occupant classification

- Highly adaptive restraints
- Multiple seating positions
- Complex crash scenarios

#### **Concept phase**

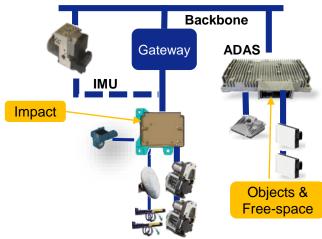
**Opportunities to leverage Active Safety** 



# **Integrated Safety towards a Safety Domain Controller**

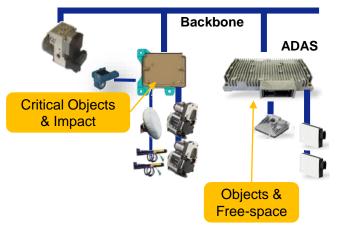
## Future of Restraint Control as ADAS moves mainstream

Restraint control for the Future Car is tightly coupled to Automated Driving. There are 3 possible trends:



## **Evolution?**

- Incremental increase in computing power
- Independent function
- Stable specifications
- Incremental improvements using available active safety data e.g. AEB



## **Expansion?**

- Increased computing power
- Shared responsibility with ADAS controller
- · Complex crash and pre-crash management
- Redundancy for HAD

## Integration?

Smart Pvro

Actuator

Reduced computing power

Backbone

- Crash management hosted by ADAS controller
- Restraint ECU becomes a smart pyrotechnical actuator

As a leader in Restraint Controls and ADAS Autoliv is prepared to support all three paths



Objects & Free-space

& Impact

ADAS

# Each year, Autoliv's products save over 30,000 lives

autoliv.com



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