Autoliv Annual Report

# 18

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Saving More Lives

Autoliv Annual Report 2018

Autoliv

# 2018 in Summary

10.5% adjusted\* operating margin

7% sales growth

market share

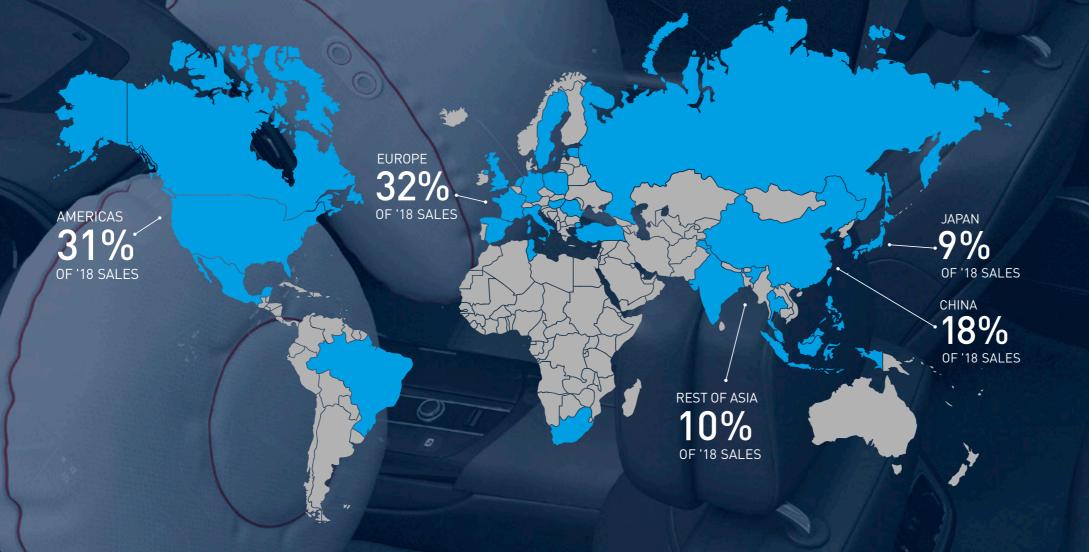
\$214 m in direct shareholder return

\$591 m

in operating cash flow\*\*



<sup>\*\*</sup> Consolidated



Ford

FCA

**Sales 2018** 

Renault/Nissan/Mitsubishi

# The World's Largest Automotive Safety Supplier

Our close to 67,000 employees in 27 countries are We continuously challenge ourselves to bring excelpassionate about our vision of Saving More Lives. lence into everything we do, providing safety for road We develop products that save over 30,000 lives each year users, consistency and quality for our customers, confiand prevent ten times as many severe injuries. Autoliv's dence and security for our employees, and stability and mission is to be the leading supplier of safety systems for growth for our shareholders as well as being sustainable the future car, well integrated with autonomous driving. and earning trust within our communities. We develop, manufacture and market protective systems,

utoliv is the worldwide leader in automotive such as airbags, seatbelts, steering wheels and pedestrian safety, with sales to all major car manufacturers. protection systems for the vehicles of today and tomorrow.

Employees ~67,000 worldwide

Operations in 27 countries

Tech Center Locations 14 worldwide

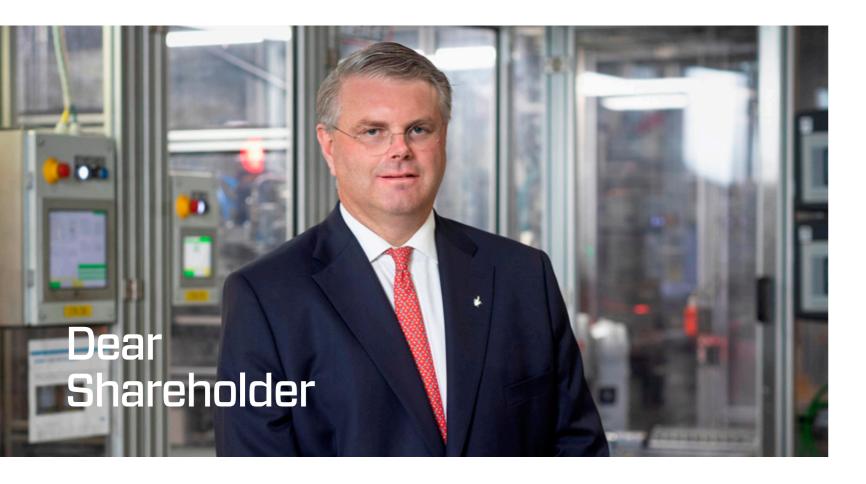
Crash Test Tracks 19 worldwide

Lives Saved >30.000 per year

Car Brands >100 worldwide

Headquarters Stockholm, Sweden

**Incorporated Delaware, United States** 



s we reflect on the past year, we look back at a year of change for Autoliv and the automotive industry. We spun off our Electronics business, allowing for a more focused strategy, optimized for our industry and market opportunities. We delivered on past years' strong order intake, resulting in a record-high level of launch activity in North America.

Autoliv continued to outpace the market in 2018, and our market share reached around 40%. We grew organically by close to 5% while light vehicle production declined by about 1%, according to IHS, an outperformance of close to 6 percentage points. We had a solid operating cash flow, and I am pleased that our order intake remained high, supporting our growth opportunities for the long term.

#### **FOCUS ON PROFITABLE GROWTH**

The spin-off of the Electronics business marked a new beginning for Autoliv. As a more focused business, we have been able to concentrate on what matters most when it comes to securing profitable growth.

Having strengthened our market position in recent years, our efforts are now focused on managing our strong order intake,

with flawless launches and smooth rampups, operational excellence and executing on our innovation pipeline.

In 2018, we were successful in executing launches, delivering on schedule with good precision. However, with a sharp increase in launch activity, by 20% in total and by 50% in North America, this came at the expense of higher launch-related costs. In the second half of 2018, we also experienced significant changes in light vehicle production in Europe and China, resulting in un-even utilization of our production assets and supply chain.

#### FINANCIAL TARGETS

Our sales and earnings capacity is supported by the continued high order intake, and our target of reaching more than \$10 billion in sales and around 13% in adjusted operating margin remain. However, due to the slowdown in global light vehicle sales and production, and increased raw material pricing, we now expect to reach these targets beyond 2020. We target to reach a leverage ratio of about 1.0x over time. Our long-term ambition is to achieve growth in line with light vehicle production plus at least 1%.

### LEVERAGING OUR TECHNOLOGICAL EXPERTISE

A key success factor for Autoliv is our strong customer focus, from innovation to manufacturing and delivery of our products. Through research conducted in cooperation with customers and leading universities, we are leveraging our combined technological expertise to improve safety for road users.

One recent example is our research collaboration with a customer to provide airbags for scooter riders. The number of two-wheelers has surged, and they are involved in a high percentage of fatal and serious accidents. Governments are increasingly becoming aware of the need to protect this vulnerable group of road users, and we foresee that demand for safety systems for these vehicles will grow. Together with our customers, we can make a positive difference.

Another research collaboration is the new research project Future Occupant Safety for Crashes in Cars (OSCCAR), in which we are partnering with car manufacturers, research organizations and other automotive suppliers to ensure a harmonized approach to designing future safety systems for cars with self-driving capabilities. In this project, we expect to better anticipate future accident scenarios in order to provide optimal safety systems for the highly automated vehicles and safety systems of the future, adapted for people of different sizes and ages.

### SAFETY CONCEPTS FOR THE FUTURE VEHICLE

The development of vehicles with increasing levels of electrification and autonomy is placing new demands on automotive safety systems. With our strong platform of existing products as well as our technological expertise and close cooperation with customers, we are well positioned to meet these requirements. Our research in steering wheel technology has resulted in improved ease of control and additional driver monitoring systems, including solutions for autonomous driving. We are developing seatbelt systems, integrating mechatronics in order to reduce reaction time, including proactive safety features and improving comfort and customization.

As we improve the effectiveness of existing airbags, we discover advances in engineering that allow designs for the interior and seating positions of autonomous cars to be adapted in order to protect people traveling in the vehicles of today and tomorrow. We will also continue to lead the develop-

ment of safety systems for vulnerable road users, such as pedestrians, cyclists and powered two-wheelers.

#### SUSTAINABLE DEVELOPMENT

Sustainability is at the core of what we do, and we have a global strategy to align our sustainability priorities, ambitions and targets, taking into account stakeholder and business priorities. In 2018 we defined targets for our key priorities. These include a restated target for saving more lives, intended to reflect the impact of the Electronics business, revised targets for health and safety, new targets for the environment and formalized targets for supply chain sustainability. The existing business ethics targets remain unchanged.

### QUALITY, INNOVATION AND COLLABORATION

The automotive industry is experiencing short and long-term changes that are creating challenges and opportunities for our industry. Ultimately it boils down to one question: How can we best protect road users in a sustainable way? I believe that quality, innovation and collaboration have brought Autoliv to where it is today. Due to our relentless focus on quality, only around 2% of vehicles recalled in our industry since 2010 have been related to Autoliv. And thanks to our focus on innovation and research collaborations, we have brought many industry firsts to the market for over 65 years.

At Autoliv, our motto is, "It Starts with Me" This reflects the ownership we all assume for our way of working and our awareness of the fact that we are all important when it comes to bringing safety to road users. I thank our employees for contributing to our important vision every day. Together, we share a culture that I truly believe provides a strong and robust platform to further develop our company, thereby saving more lives and creating more value for our stakeholders.

With our commitment to safe road journeys,

Mikael Bratt, President & CEO

Stockholm February 21, 2019



# At the Forefront of Technology to Save More Lives

Based on our extensive research into real-life accidents, we develop and engineer automotive safety solutions to save more lives and prevent injuries on our roads. The way we innovate solutions is a key differentiator that sets us apart from our competitors.

# PEDESTRIAN AIRBAGS AND HOOD LIFTERS Protect Pedestrians

When pedestrians are involved in traffic accidents, severe or fatal injuries are often the result. Active hood lifters and outside pedestrian protection airbags aim to reduce the severity of pedestrian head injuries in case of a pedestrian-vehicle accident.

### FRONTAL AIRBAGS

#### Save Lives and Reduce Injuries

In frontal crashes, driver airbags reduce driver fatalities by 29%.
Combining driver airbag with using seatbelt reduce fatalities in frontal crashes by 61%. Driver airbags also reduce severe injuries in frontal crashes by 32%. Autoliv offers driver, passenger and knee airbags.

# STEERING WHEELS With the Lives of Others in Your Hands

Autoliv is the leading supplier of steering wheels. The steering wheel is a key element for the interaction between driver and vehicle. This is reflected in our innovative HMI-(human machine interface) steering wheel for future cars, which uses touch technology and air gesture controls to keep the driver in full control and demonstrates the seamless transition between manual and automated driving. It enables the driver to control more functions with less distraction, which makes for a safer driving experience.

### SIDE-CURTAIN AIRBAGS Reduce Head Injuries

In near-side crashes, curtain and side airbags together reduce fatalities by 31% for vehicle occupants. Autoliv offers front and rear side airbags, curtain and far side airbags.

### CHILD SEATS Protect Children

An integrated booster cushion and specially designed seatbelt offer a vehicle system solution that improves the comfort and safety of children while reducing the risk of misuse.

## SEATBELTS **Top Life-Saving Device**

The seatbelt is the top life-saving device. It reduces fatalities for front row occupants in passenger cars by 45% for all types of crashes. Seatbelts also reduce moderate and severe injuries by 45%. The technology content of modern seatbelts has increased to include constant load limiters, adaptive load limiters, pretensioners, pre-pretensioners with electrical motor activation, warning functions and integrated ECUs (electronic control units).

### PYRO SWITCH Stop the Fire

Autoliv has developed a device to stop potential fires caused by short-circuiting: a pyro safety switch that can disconnect or cut the power after an accident.

# Our Customers and Major Launches in 2018

Autoliv delivers to more than 100 car brands worldwide and with a market share of around 40% in 2018.

the ten largest represented 79%. This reflects the concentration in the automotive industry. The five largest vehicle manufacturers (OEMs) in 2018 accounted for 49% of global light vehicle production (LVP) and the ten largest for 74%. A delivery contract typically covers the lifetime of a vehicle in China of around 5% was driven by both domestic and model, which is normally between four and six years depending on customer platform sourcing preferences and strategies.

#### **CUSTOMER SALES TRENDS**

Asian vehicle producers have become increasingly important to Autoliv and now represent around 45% of global sales, compared to 35% five years ago. Of the Asian OEMs, the gering effects of constraints on new business in 2011 and 2012.

24% in 2013. This reflects their increasing share of global LVP and our stronger market position based on our local presence in Japan. OEMs from China represent 4% of our sales. The organic sales increase from Autoliv's companies global OEMs. Sales growth to domestic OEMs was mainly attributable to Geely, including Lynk & Co, and Great Wall.

> Sales to European OEMs remained unchanged at 33%, compared to 2013. The Detroit-3 now account for 19% of our global sales, down from 30% in 2013. This is in part due to the sale of GM's European operations, Opel, to PSA and the lin-



















Nissan Altima: Knee airbag, side airbag, inflatable curtain and seatbelt with pretensioner.

Ford Focus: Knee airbag, passenger airbag, side airbag and seatbelt with pretensioner.

Honda Crider: Driver airbag with steering wheel, passenger airbag, side airbag and seatbelt with pretensioner.

Kia K3: Steering wheel and seatbelt with

RAM 1500: Driver airbag with steering wheel, passenger airbag and side airbag.

Mercedes Sprinter: Driver airbag with steering wheel, passenger airbag, side airbag, inflatable curtain and seatbelt with pretensioner. Subaru Forester: Passenger airbag, side airbag and inflatable curtain.

Audi Q3: Driver airbag with steering wheel, passenger airbag and active seatbelt with pretensioner.

VW Jetta: Driver airbag, seatbelt with pretensioner and steering wheel.



# Financial Targets

Autoliv Annual Report 2018 / Financial and Sustainability Targets

Our targets reflect the key performance measures through which we execute our key strategies. The financial targets cover the areas of sales growth, margin development and capital structure.

>\$10 Bn Sales

~13% Adi. Operating Margin<sup>1)</sup> 1.0 x Leverage Ratio<sup>2)</sup> (0.5-1.5x Range)

In 2018, Autoliv's organic sales increased by  $5\%^{3}$ , an adjusted operating margin of 10.5%. During 2018, compared with an underlying automotive safety mar- Autoliv's net debt position increased by \$1,250 million ket that grew less than 2%. Sales for airbags (including to \$1,619 million, mainly due to the capitalization of steering wheels) accounted for 66% of group sales, while Veoneer prior to the spin-off. At the end of 2018 the seatbelts accounted for 34%. In 2018, Autoliv achieved leverage ratio was 1.5 which is within the target range.

Non-US GAAP measure excludes capacity alignment and antitrust related costs.

<sup>21</sup> Leverage Ratio = Debt per policy/LTM EBITDA; Debt per policy = Net debt + Pension liabilities.

# **Sustainability Targets**

Our sustainability targets reflect our vision of saving more lives and our customer focus, innovation, operational excellence, commitment to our employees, and cost and risk management.

Innovate Life-Saving Products

**OUR TARGETS** 

100,000

Lives saved By 2030

Limit Our Impact on the Environment

**OUR TARGETS** 

\* Efficiency target, measured per part delivered.

12 % REDUCTION

C0<sub>s</sub>e Emissions\* Scope 1 & 2 By 2023

12 % 100% **REDUCTION PERFORMED** 

Water Risk Consumption<sup>3</sup> Assessment By 2020

Y-o-Y

REDUCTION Waste and

Scrap Continuous

Commit to Our Employees

**OUR TARGETS** 

Incident Rate

By 2022

Severity Rate

By 2022

Energy

By 2023

Act Ethically & Commit to Society

**OUR TARGETS** 

\* Completion rate measured from the annual target group.

100 %

Anti-corruption training completion\* Continuous

100 %

Anti-trust training completion\* Continuous 100 %

Code of Conduct Certification\* Continuous

Supply Chain Sustainability

**OUR TARGETS** 

\* DM = Direct Material.

100 %

New DM\* suppliers sustainability audited Continuous

100%

All DM\* suppliers sustainability audited By 2021

**95** %

DM\* suppliers respond to Conflict minerals Survey. **By 2022** 

<sup>3]</sup> Non-U. S. GAAP measure.



**Market and Operations** 

Quality and Comfort from Steering Wheels to Seatbelts and Beyond

utoliv develops, manufactures and markets protective systems, such as airbags, seatbelts and steering wheels, for the automotive industry. Autoliv spun off its Electronics segment in mid 2018, resulting in a company with a more focused strategy, increased operational flexibility and higher potential for profitable growth. Since 1997, our compound annual growth rate (CAGR) has been 5.6%, compared with a market rate of around 3%. Our ability to outperform the market is a result of a steady flow of new safety technologies, a strong focus on quality and a superior global production and engineering footprint. This has enabled Autoliv to increase its market share from 27% in 1997 to around 40% in 2018 In addition to our primary goal of saving lives, quality is key to our financial performance and future success. Due to our relentless focus on quality, only around 2% of vehicles recalled since 2010 have been related to Autoliv. This is a favorable result given our global market share of around 40%.

#### MARKET AND COMPETITION

The automotive safety market is driven by two factors: light vehicle production (LVP) and content per vehicle (CPV). Over the coming three-year period, from 2018 through 2021, our market is expected to grow by approximately 4% per year, which is about 2 percentage points more than LVP, mainly due to increased safety content per vehicle in growth markets, but also thanks to higher installation rates of knee airbags and more advanced seatbelt systems.

#### LIGHT VEHICLE PRODUCTION (LVP)

LVP has increased at an average annual growth rate of 2.6% over the last two decades, despite the cyclical nature of the automotive industry. LVP is expected to grow to close to 97 million units in 2021 from approximately 91 million in 2018, according to IHS. Almost all of this expansion will take place in growth markets, predominantly in China. India and South America.

#### CONTENT PER VEHICLE (CPV)

By continuously developing and introducing new technologies with higher value added features, Autoliv can influence safety content per vehicle. As a result of the increasing average CPV, the automotive safety market has outgrown LVP. Our steady flow of new technologies has also enabled us to further outpace the market and increase our market shares in all product areas and regions.

#### Light vehicle production

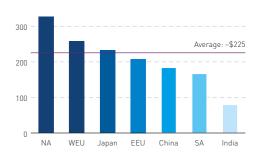
In million units Source: IHS January 17, 2019



 Developed Markets (Western Europe, Japan, North America, South Korea).
 Growth Markets (Eastern Europe, China, Rest of Asia South America, Middle East/Africa).

#### 2018 Content per vehicle3)

US\$ per vehicle



3) Company estimates. Includes seatbelts, airbags, steering wheels and pedestrian safety.

Autoliv Annual Report 2018 / Market and Operations Autoliv Annual Report 2018 / Market and Operations

#### **COMPETITORS**

Autoliv's major competitors are Joyson Safety Systems (JSS) and ZF. JSS was formed through the merger of KSS and Takata Corporation. JSS is owned by the Chinese company Ningbo Joyson Electronic and is estimated to hold a global market share of 24%. ZF has an estimated global market share of 17%. In Japan, Brazil, South Korea and China, there are a number of local suppliers with close ties to domestic vehicle manufacturers. For example, Toyota uses Tokai Rika for seatbelts and Toyoda Gosei for airbags and steering wheels. These suppliers generally receive a significant portion of the Toyota business in Japan. Similarly, Mobis, a major supplier to Hyundai/Kia in South Korea, generally receives a significant part of their business. Other competitors include Nihon Plast and Ashimori in Japan, Jinheng in China, Samsong in South Korea and Chris Cintos in South America. Collectively, these competitors account for the majority of the remaining 19% global market share.

#### **GLOBAL PRODUCTION FOOTPRINT**

With manufacturing facilities in 25 countries covering all regions. Autoliv has the best global footprint in the industry. We work hard to be the supplier of choice on

global vehicle platforms and to grow with our customers as they extend their global production.

Component production is concentrated to a few locations, while final assembly plants are located close to customers.

Finished products are delivered "just in time", sometimes several times a day, to vehicle manufacturer plants. For some customers, we have established final assembly centers inside or close to their manufacturing plants. Autoliv's products are fed into the vehicle assembly line in the right order, in accordance with the car buyers' selections of colors and optional equipment. Autoliv's final assembly center receives a new order almost every minute. and within two to five hours (depending on the product) the order is executed and the product delivered. Autoliv's production lines and equipment are often developed by Autoliv itself to ensure standardization, high quality and the integrity of proprietary production technologies. Including joint venture operations. Autoliv has approximately 64 production facilities located in 25 countries, consisting of component factories and final assembly factories. The products manufactured by Autoliv's consolidated subsidiaries in 2018 consisted of ~ 151 million complete seatbelt systems (of

which ~79 million were fitted with pretensioners), ~ 99 million side airbags (including curtain airbags), ~ 56 million frontal airbags and ~ 20 million steering wheels.

#### REDUCE DIRECT MATERIAL COSTS

Approximately half of our revenues are spent on direct materials from external suppliers. Autoliv mainly purchases manufactured components, and approximately 50% of the company's component costs comprise of raw materials value. We take several actions to mitigate higher commodity prices, such as re-designing products to reduce material content and weight, and component standardization to reduce complexity and gain cost advantages.

#### REDUCE LABOR COSTS

In 2018, wages, salaries and other labor costs corresponded to almost 10% of sales. To reduce labor costs while offsetting the price erosion on our products, we continuously implement productivity improvement programs, expand production in Best Cost Countries (BCCs) and institute restructuring and capacity alignment activities. Autoliv has more than 80% of its direct workers in BCC.

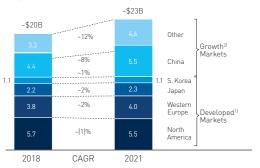
Our continuous improvement strategies have enabled productivity improvements in

production well above our productivity improvement target of at least 5% per year for the past five years, except for in 2018. In 2018 we were unable to reach our target due to the sharp increase in launch activities. especially in North America.

We foresee opportunities for further productivity on gains from increasing use of automation in our assembly for lean manufacturing processes. Additionally, automated cells typically perform the manufacturing process with reduced variability. This results in greater control and consistency of product quality.

#### Market by region<sup>3)</sup>

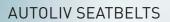
US\$ (Billions)



- 1) Developed markets (Western Europe, Japan, North America, South Korea).
- 2) Growth markets (Eastern Europe, China, Rest of Asia, South America Middle Fast/Africal
- 3) Company estimates. Includes seatbelts, airbags, steering wheels and pedestrian safety.

	BRAZIL <sup>1]</sup>	CANADA	CHINA <sup>1]</sup>	ESTONIA <sup>1)</sup>	FRANCE	GERMANY	HUNGARY <sup>1</sup>	INDIA <sup>1]</sup>	INDONESIA <sup>1]</sup>	ITALY	JAPAN	MALAYSIA <sup>1,2)</sup>	MEXICO	NETHER LANDS			1) ROMANIA <sup>1)</sup>	RUSSIA <sup>1)</sup>	SOUTH AFRICA <sup>1)</sup>	SOUTH KOREA	SPAIN	SWEDEN	N THAILAND <sup>1)</sup>	TUNISIA <sup>1)</sup>	TURKEY <sup>1]</sup>	UNITED KINGDOM	USA
Headcount	939	418	8 891	775	2 286	1 362	2 389	2 220	169	14	2 173		14 15	5 7	1 306	3 539	10 101	166	157	751	271	489	3 257	2 661	2 826	222	5 219
Tech center			•					•			•					•	•			•							
Production																											
Airbags	•							•			•					•	•				•						
Seatbelts	•		_					_	•		_	•	_			•	•	_	_	_							
Steering wheels	•		•		•			•	•		•				•		•	-					•				
Other 3)		•	-	•	•			-			•		•			•	•					•	•		•	•	•
Sales and support office																											

- 1) Defined as a Best Cost Country.
- 2) Includes headcount in non-consolidated joint ventures.
- 3) Includes weaving and sewing of textile cushions, seatbelt webbing, inflators, components for airbag and seatbelt products.

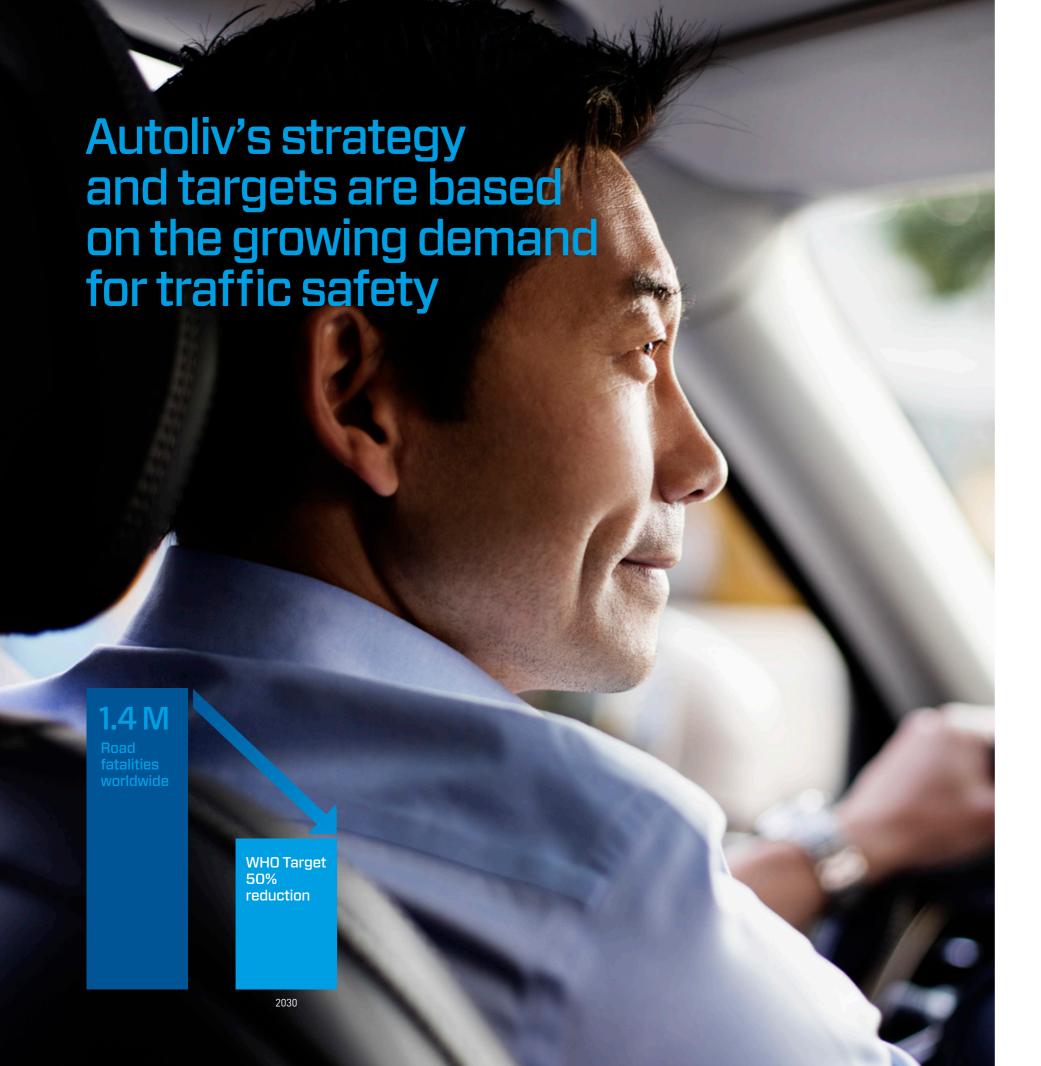


### **Top Life-Saving Device**

The seatbelt is the top life-saving device. Seatbelts reduce moderate and severe injuries by 45% and – even more importantly – reduce fatalities for front row occupants in passenger cars for all types of crashes by

45%





utoliv's strategy and targets are based on the growing demand for traffic safety. According to the World Health Organization (WHO) 1.4 million people die globally in road accidents every year. In addition, 20 to 50 million people suffered non-fatal vehicle-related injuries, causing not only human suffering but also costs corresponding to about 3% of GDP in most countries. WHO has therefore launched a target to cut fatalities in half by 2030. This underlines the importance of our commitment to save more lives and reduce the number of injuries on our roads. The need for our products continues to grow.

#### OPERATIONAL EXCELLENCE

Autoliv's focus on **quality** and customer focus in **innovation** and operations has built trust and strong demand. Together with

effective standardization, One Product One Process (1P1P) and our manufacturing philosophy for governing processes, known as the Autoliv Production System (APS), they represent Autoliv's tools and methods for delivering on our strategy and for laying a strong foundation for operational excellence.

#### PROFITABLE GROWTH

Operational excellence is a focus for all areas of our operations, from managing our order intake with seamless launches and smooth ramp-ups to demonstrating best-in-class quality, cost optimization and improving asset utilization.

We have a strong customer focus, from innovation to manufacturing and delivery of our products, and we continue

to innovate and explore adjacent areas, leveraging expertise for profitable growth.

#### MANAGE ORDER INTAKE

- Seamless launch of identified market opportunities based on diligent preparations and application engineering
- Manage increased order pressure through smooth ramp-up of operations

#### SUSTAINABLE GROWTH

- Boost new orders by remaining at forefront of innovation
- Explore adjacent areas, leveraging expertise for profitable growth

#### FLAWLESS EXECUTION

**Autoliv** 

- Execute with diligence, reliability and efficiency
- Demonstrate best-in-class quality with superior operational excellence, cost optimization and asset utilization.

#### CUSTOMER FOCUS

- Build upon successful order execution to sustain
- Truly commit to customers with day-to-day attention
- Support customers locally



### AUTOLIV PRODUCTION SYSTEM

The Autoliv Production System (APS) is our manufactur-

ing philosophy for governing processes based on the guiding principles of continuous flow, quality right first time, visualization, and teamwork and involvement. It describes the target conditions and tools to be applied within our facilities to achieve delivery of goods and services at the right time, in the right amount, at the required quality and at the lowest cost possible to all our customers, regardless of whether they are external or internal.

APS integrates essential quality elements, such as mistake proofing, statistical process control and operator involvement, into the manufacturing processes so all Autoliv employees are aware of and understand the critical connection between themselves and our lifesaving products.



#### QUALITY

Autoliv's primary goal is to save lives. Our products never get a second chance. This

is why we never compromise on quality. As people's lives depend on our safety products, we strive for zero defects in all we do.

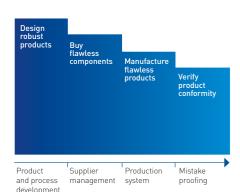
Our pursuit of excellence extends throughout the value-chain to ensure robust product designs, flawless components from suppliers and our own in-house component companies, manufacturing of flawless products with a system for verifying that our products conform with specifications, and an advanced traceability system in the event of a recall.

To continuously improve our own quality, we run a program known as "Q5" aimed at shaping a proactive quality culture of zero defects. It addresses quality in five dimensions: customers, products, suppliers, growth and behavior. A vital part of Q5 is Jidoka, the commitment that when an operator detects an abnormality he or she can directly stop the line to take appropriate actions.

Our "zero-defect" principle extends beyond Autoliv to the entire supplier base. All of our suppliers must accept the strict quality standards in the global Autoliv Supplier Manual, which defines our quality requirements. It focuses on preventing bad parts from being produced by our suppliers and helps eliminate defective intermediate products in our assembly lines as early as possible.

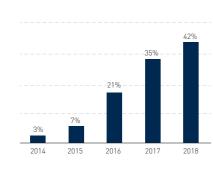


### Relentless focus on Quality through Q5



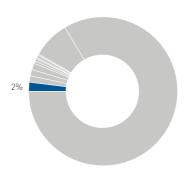
#### **Quality Improvement**

Reduction of non-conforming events, reference year 2013



#### Minimal recalls

Share of global recalls and ~40% market share



# 1PP

#### ONE PRODUCT ONE PROCESS - 1P1P

Through effective standardization, we create customer and shareholder value. One

Product One Process (1P1P) promotes total cost management in engineering, manufacturing and purchasing.

Reducing complexity is key to lowering costs and increasing product robustness, resulting in higher customer satisfaction. Autoliv's 1P1P initiative achieves reduced complexity by standardizing certain parts, resulting in fewer parts needed to satisfy customer projects. Progress is driven by

cross-functional product teams with the authority and responsibility to manage one or several product families with a global mindset in terms of product design, manufacturing and supplier management. These product teams also ensure proper usage of the products in customer projects and manage the transfer of product knowledge. 1P1P promotes a culture in which lessons learned are shared globally, thereby incrementally bringing us closer to zero defects.

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Autoliv Annual Report 2018 / Strategy

### **Uniquely Positioned to Save More Lives**



#### INNOVATION

Our research focuses on improving safety to reduce road fatalities and injuries. New industry trends, such as au-

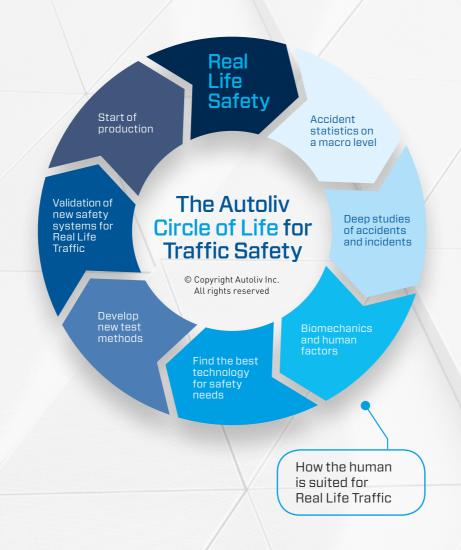
tonomous driving, electrification and more comfortable cockpits, are generating new safety needs that call for more sophisticated safety products.

Autoliv has pioneered automotive safety for over 60 years, including the introduction of several world firsts. Our approach to real-life safety, together with our methods and processes, and our ambition and dedication to save more lives, puts Autoliv in a unique position. As a safety leader, we can identify upcoming opportunities.

#### SOLUTIONS BASED ON REAL-LIFE DATA

A key differentiating factor is that we do research and find solutions based on real-life data. Our research and development are based on real traffic accidents and injuries as well as numerous crash tests, user clinics, simulations, driving data collection and the vast expertise gathered by our specialists over many years.

The way we innovate solutions is a key differentiator that sets us apart from our competitors.



### Test Services for Industry and Customer Needs

Autoliv offers state-of-the-art laboratories that replicate customer specifications as well as a variety of sophisticated and cost-efficient test services tailored to meet industry needs. Autoliv handles every aspect of testing – from test method development, pre-test preparations, post-test analysis, and computer simulations to crash testing and safety improvement recommendations.

#### COMPUTER SIMULATIONS

Developed through years of research and development, computer simulations can be an economical and time-efficient alternative to physical testing. Modeling also provides the capability to expand product or system evaluations to include test conditions and scenarios for which physical testing is not possible or practical.

#### COMPONENT TESTING

Autoliv's test centers offer an extensive range of test capabilities for testing specific components, such as seatbelt webbing, load brackets, airbag fabrics, and metal or plastic parts.

#### PRODUCT TESTING

The performance of a complete restraint product can be tested in our seatbelt or airbag laboratories. All products are both statically and dynamically tested. Airbag systems are deployment-tested under various temperatures (with or without dynamic loading on the bag). Computer simulation models are then validated based on the product testing results.

#### SUB-SYSTEM SLED TESTING

During the product development phase, system-level

performance is evaluated using critical components of the full system tested dynamically on a sled. Instead of destroying a complete car for each test, the stripped vehicle body is reinforced, placed on a sled, fitted with the sub-system components, and accelerated in accordance with that vehicle's crash test characteristics. The recorded crash pulse for the simulated car can be accurately repeated, thus tightly controlling the test-to-test variables.

#### **VEHICLE CRASH TESTING**

In a vehicle crash test, impacts can be performed up to a velocity of 100 km/h. Autoliv can conduct a number of different test modes depending on the specific requirements of the car manufacturer or governmental regulations. Common test modes include flat barrier impact, angled barrier impact, offset barrier impact, pole barrier front or side impact, under ride barrier impact, mobile barrier, side or rear impact, car to car, and roll-over tests. Several Autoliv sites also perform crash tests on electric vehicle and hybrid electric vehicle models. Sled and full vehicle crash tests are supervised from a control room using a fully computerized crash control system – and customers can view the crash testing from a well-equipped observation room.

### Long Track-Record of Commercializing Industry Firsts

Deeply Integrated R&D Dialog with Global Customer Base



\* Industry first

Autoliv Annual Report 2018 / Strategy



utoliv has customer technical centers in all key markets and 5,300 people in research development and application engineering. We support our customers through our technical centers and manufacturing facilities located close to their assembly plants in North America, Western Europe and Asia. Our application engineering projects are completed at our technical centers located close to our customers and in close cooperation with the manufacturing units. The majority of Autoliv's RD&E projects are focused on application engineering to support the development of new vehicle models.

Autoliv proudly participates in research collaborations that include universities and research institutes with the aim to improve traffic safety. In 2018, we joined the new Future Occupant Safety for Crashes in Cars (OSCCAR) project in which we partner with car manufacturers, research organizations and other automotive suppliers to harmonize the designs of future safety systems for self-driving cars.

#### RESEARCH AREAS Traffic Safety Analysis

To constantly improve traffic safety, we need to know what is happening on the roads today, how current safety systems perform in real-life traffic, and how to design safety systems for the future. Autoliv uses various data sources and methods to prioritize research topics, develop test methods, calculate retrospective safety benefits and predict future benefits. The analysis and predictions from this research serve as

requirements for the development of future safety systems.

#### **Human Factors**

Autoliv designs solutions based on truly cross-disciplinary research. Vehicle sensing capabilities need to be systemized so that the vehicle can take driving context and driver state into account when responding to traffic events. Our research includes everything from road-user behavior to usage of safety systems and comfort.

#### Biomechanics

To limit the injuries from a car accident, we need tools that represent a diverse population, and we need to understand the implications of the change in mobility and improved sensing to develop future occupant protection. Autoliv's advanced omnidirectional human body models simulate real human bodies containing bones, muscles and organs. We can depict the characteristics of a diverse population of differing age, sex, weight and height. This allows us to study injury mechanisms on a very detailed level, which is necessary for such areas as upcoming new restraint systems for automated driving.



The vehicles of the future, with increasing levels of electrification and autonomy, are placing new demands on automotive safety systems. Autoliv is well positioned to meet future automotive safety needs. Our current portfolio provides a foundation for vehicles with higher autonomy. Our solutions for autonomous driving are a natural evolution of our safety products, positioning Autoliv at the forefront of innovation.

As we strive to improve existing airbag effectiveness, we discover advances in engineering design that will protect individuals for years to come. We are continually developing new

seatbelt systems, integrating mechatronics in order to drive towards reduced reaction time, proactive safety features, and improved comfort and customization to accommodate any kind of journey. Our research in steering wheel technology has resulted in improved ease of control and additional driver monitoring systems, including solutions for autonomous driving. In the future transportation system, with a mixed fleet of vehicles, there will be a need to protect vulnerable road users. This is increasingly being recognized by governments, and Autoliv is currently developing countermeasures for pedestrians, cyclists and powered two-wheelers.

#### Life cell airbag

First developed by Autoliv Research, the life cell airbag provides protection regardless of how a driver or passenger is seated, including the seat orientation in proximity to the steering wheel and seatback orientation.



New seating concepts requiring new restraint systems.



30 31

New safety systems

A higher level of

autonomy allows

for more flexibility

in terms of interior layout. Flexible

seating with new

layouts and posi-

safety systems.

tions requires new



## **Our Employees**

ontinuing as the world's leading supplier of automotive safety systems requires a drive for excellence, from the earliest phases of product development to the sales and services that we offer to our customers, and a passion for saving more lives. Every year, our products save more than 30,000 lives and prevent ten times as many severe injuries. We take great pride in our mission. Innovation, quality and customer focus are key factors for our success. We are an innovative business and a global leader in our industry. We are constantly looking for professionals, experts and leaders who share our commitment to saving lives and who can contribute to our mission.

#### DEVELOPMENT OF OUR EMPLOYEES

Autoliv offers a positive working environment with challenging projects. Development is essential in a highly competitive and rapidly changing environment. An important cornerstone of each employee's growth is the ongoing personal, transparent communication between the team member and manager, which is summarized during an annual performance and development dialog (PDD). During 2018, 99% of targeted employees conducted a PDD with their managers. To further support the growth of our employees, Autoliv has a multitude of development channels, including technical and specialist career paths, international assignments and other such programs. Each year, more than 8,500 employees attend at least one training program, and we work to promote continuous development on the job, every day.

#### **HEALTH AND SAFETY**

Autoliv is committed to providing a working environment that promotes the health, safety and welfare of our employees. Each Autoliv facility implements Autoliv's health and safety management system, which is supported by leadership teams. The implementation of the system is monitored through internal and external audits.

#### DIVERSITY

Autoliv is committed to diversity and values differences among our employees as rich as the diverse characteristics of the end users of our products around the world. Our workforce reflects the diversity of the countries and cultures in which we operate. At the end of 2018, 46% (44% in 2017) of our workforce and 21% (15% in 2017) of our senior management positions were filled by women. We have operations in 27 different countries, with 28% of our workforce located in Asia, 31% in the Americas and 41% in Europe (including Africa, Russia and Turkey).

#### LABOR RIGHTS

Autoliv is committed to offering fair terms and conditions of employment. Our values, code of conduct, talent development strategies and employment policies support the principles in the United Nations Universal Declaration of Human Rights, and the International Labor Organization's Fundamental Principles and Labor Standards.

#### Well balanced workforce

By age, group, and gender in %





## Creating Shareholder Value

By creating customer satisfaction, maintaining tight cost control and developing new products, we generate cash for long-term growth, financial stability and competitive returns to our shareholders.

utoliv has always had a strong cash flow and cash generation focus. Our operating cash flow has always exceeded capital expenditures. On average, operations have generated around \$792 million in cash per year over the last five years, while our capital expenditures, net, have averaged around \$505 million per year during the same period. Since 1997 the Company has converted approximately 90% of its net income to free cash flow, i.e. cash flow after capital expenditures.

#### CAPITAL EFFICIENCY IMPROVEMENTS

Autoliv's strong cash flow reflects both the Company's earnings performance and it's improvements in capital efficiency. During 2018, our capital turnover rate, sales in relation to average annual capital employed, was 2.5 times. This was a small improvement compared to 2.3 times in 2017. However, on a comparable basis for continuing operations, the improvement was 0.7 times.

#### OUR CASH FLOW MODEL

Cash flow vs. CapEx

When analyzing how best to use each year's cash flows from operations, Autoliv's Executive Management and the Board of Directors use a model to create shareholder value that considers important variables such as the marginal cost of borrowing, the return on marginal investm ents and the price of Autoliv shares (see cash flow illustration). When evaluating the various uses of cash, the need for flexibility is weighed against acquisitions and other potential settlements.

#### INVESTING IN OPERATIONS

To create long-term shareholder value, cash flow from operations should only be used to finance investments in operations until the point when the return on investment no longer exceeds the cost of capital. Our historical pre-tax cost of capital has been approximately 11%.

Autoliv's pre-tax return on capital employed has always exceeded this level, except during the financial crisis in 2008-2009. During the last five years, return on capital employed has varied between 13% and 21%, i.e. 1 to 2 times the pre-tax cost

In 2018, \$555 million was reinvested in the form of capital expenditures, net. This corresponds to 94% of the year's operating cash flow of \$591 million. It was also around 40% higher than depreciation and amortization due to our strong order intake and the need for additional manufacturing capacity.

#### ACQUISITIONS, DIVESTMENTS AND INVESTMENTS IN ASSETS

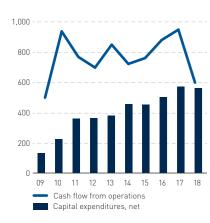
In order to accelerate company growth and create shareholder value over time. we use some of the cash flow generated for acquisitions and for investments in assets such as joint ventures and intellectual property. These are typically made to consolidate our position in the industry, increase our vertical integration or expand into new markets. Divestments could be made for instance with the obiective to optimize business culture and enhance business focus. In 2018, we distributed our Electronics business seqment to our share-holders in the form of a dividend. The new company, Veoneer, had its first day of trading on July 2, 2018.

#### SHAREHOLDER RETURNS

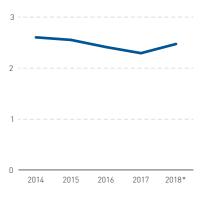
Since Autoliv has historically used both dividend payments and share repurchases to create shareholder value, and we

#### Capital turnover rate

US\$ [Millions]



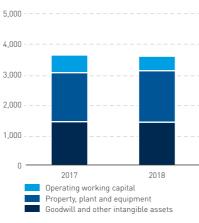
Times, sales in relation to average capital employed



<sup>\*</sup> Continuing operations

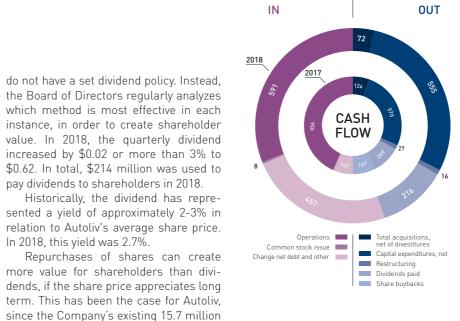
#### Assets by category\*

US\$ [Millions]



<sup>\*</sup> Continuing operations

#### Autoliv's Model for Creating Shareholder Value US\$ (millions)



and our long-term target is to have a leverage ratio of around 1 time and to be within the range of 0.5 and 1.5 times. In addition to the above, the objective is to provide the Company sufficient flexibility to manage the inherent risks and cyclicality in Autoliv's business and allow the Company to realize strategic opportunities and fund growth initiatives while creating shareholder value. In 2018. Autoliv was within the range in until Autoliv capitalized Veoneer by about \$1.0 billion when it was spun off at the end of the second quarter. On December 31, 2018, the leverage ratio was again back inside the range, at 1.5 times. Autoliv holds an "A with negative outlook" credit rating by Standard & Poor's. We aim at maintaining a strong investment grade rating as our current capital structure should provide flexibility to generate further shareholder returns and the funding of our capital requirements.

In 2018, this yield was 2.7%.

treasury shares have been repurchased

at an average cost of \$56.13 per share,

while the closing price at the end of 2018

was \$70.23. During 2018, Autoliv did not

repurchase any shares. The remaining

Board authorization is approximately 3.0

Our debt limitation policy is to maintain

a financial leverage commensurate with

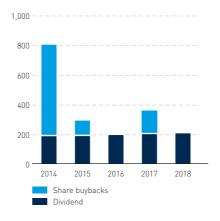
a "strong investment grade credit rating"

US\$ [Millions]

million shares.

**CAPITAL STRUCTURE** 

Shareholder Returns



#### SHAREHOLDER INFORMATION

Autoliv common stock is traded on the New York Stock Exchange ("NYSE") while Autoliv Swedish Depositary Receipts (SDRs) are traded on NASDAQ Stockholm's list for large market cap companies. During 2018, the number of shares outstanding increased by 0.1 million to 87.1 million (excluding dilution and treasury shares). The weighted average number of shares outstanding for the

full year 2018, assuming dilution, was reduced to 87.3 from 87.7 million in 2017. Stock options (if exercised) and granted restricted Stock Units (RSUs) could increase the number of shares outstanding by 0.4 million shares in total. Combined. this would add 0.5% to the Autoliv shares outstanding. On December 31, 2018, 3.0 million shares were available for repurchase under the current Board authorization from 2014. On December 31, 2018, the Company had 15.7 million treasury shares. Autoliv estimates that there were approximately 70,000 beneficial Autoliv owners as of December 31, 2018, Close to 21% of Autoliv's securities were held by U.S.-based shareholders and around 60% by Sweden-based shareholders. Most of the remaining Autoliv securities were held in the U.K.. other Nordic countries, Central Europe, Japan and Canada.

#### THE LARGEST SHAREHOLDERS

Holder name	No. of shares	%
Cevian Capital AE	8,376,924	9.6
Alecta Pensior Insurance Mutua	8,206,200	9.4
Swedbank Robur Fonder AE	4,030,965	4.6
AMF Pensionsförsäkring AE	3,250,000	3.7
Nordea Investmen Management AE	3,068,703	3.5
Total December 31, 2018	87,144,520	100.0

<sup>1)</sup> Known to the Company, of approximately 70,000 shareholders, as of December 31, 2018

#### **KEY STOCK PRICE DATA 2018**

NYSE	Price (\$)	Date
First trading day	92.11	Jan 2, 2018
Year high	115.08	June 6, 2018
Year low	69.78	Dec 24, 2018
Closing	70.23	Dec 31, 2018
NASDAQ	Price (SEK)	Date
NASDAQ	Price (SEK)	Date
NASDAQ First trading day	737.00	<b>Date</b> Jan 2, 2018
	· · · · · · · · · · · · · · · · · · ·	
First trading day	737.00	Jan 2, 2018



From left:

#### Hasse Johansson

Director since 2018. Member of the Risk and Compliance Committee and the Audit Committee.

#### James M. Ringler

Director since 2002. Chairman of the Leadership Development and Compensation Committee. Member of the Nominating and Corporate Governance Committee.

#### Xiaozhi Liu

Director since 2011. Member of the Nominating and Corporate Governance Committee. Member of the Leadership Development and Compensation

#### Jan Carlson

Chairman since May 2014 and Director since 2007.

#### David E. Kepler

Director since February 2015. Chairman of the Risk and Compliance Committee. Member of the Audit Committee.

#### Franz-Josef Kortüm

Director since 2014.

#### Thaddeus "Ted" Senko

Director since 2018. Chairman of the Audit Committee. Member of the Risk and Compliance Committee.

#### Leif Johansson

Director since February 2016. Chairman of the Nominating and Corporate Governance Committee. Member of the Leadership Development and Compensation Committee.

Mikael Bratt (not present in picture)
President and CEO of Autoliv Inc. since June 2018, and Director since 2018.

For more information, visit Corporate Governance and the proxy statement on <a href="https://www.autoliv.com">www.autoliv.com</a>

#### From left:

Mike Hague President, Autoliv Europe (AEU) Employed 2006

#### Mats Backman

Chief Financial Officer Employed 2016

#### Mikael Bratt

President and CE0 Employed 2016

#### Jennifer Cheng

President, Autoliv China (ACH) Employed 2006

#### Anthony Nellis

Executive Vice President, Legal Affairs General Counsel & Secretary Employed 2002

#### Dan Garceau

President, Autoliv Americas (AAM) Employed 1993

#### Jordi Lombarte

Chief Technology Officer Employed 1991

#### Svante Mogefors

Executive Vice President, Quality and acting Executive Vice President Operations Employed 1996

#### Sherry Vasa

Executive Vice President Human Resources & Sustainability Employed 1992 **Brad Murray**President, Autoliv Asia (AAS)

Employed 1987

**For more information**, visit Corporate Governance and the proxy statement on <a href="https://www.autoliv.com">www.autoliv.com</a>

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