

First Sensor 

COMPANY PRESENTATION

DEUTSCHES EIGENKAPITALFORUM 2017



COMPANY PRESENTATION

Agenda

First Sensor at a Glance

Strategic Perspective for Profitable Growth

Growth Driver LiDAR

Q3 Interim Report 2017

FIRST SENSOR AT A GLANCE

OUR COMPANY

We are a leading provider of sensor technology.

1991
foundation

150.1
million sales revenues in 2016

850
employees

3
markets

9
development and
production locations

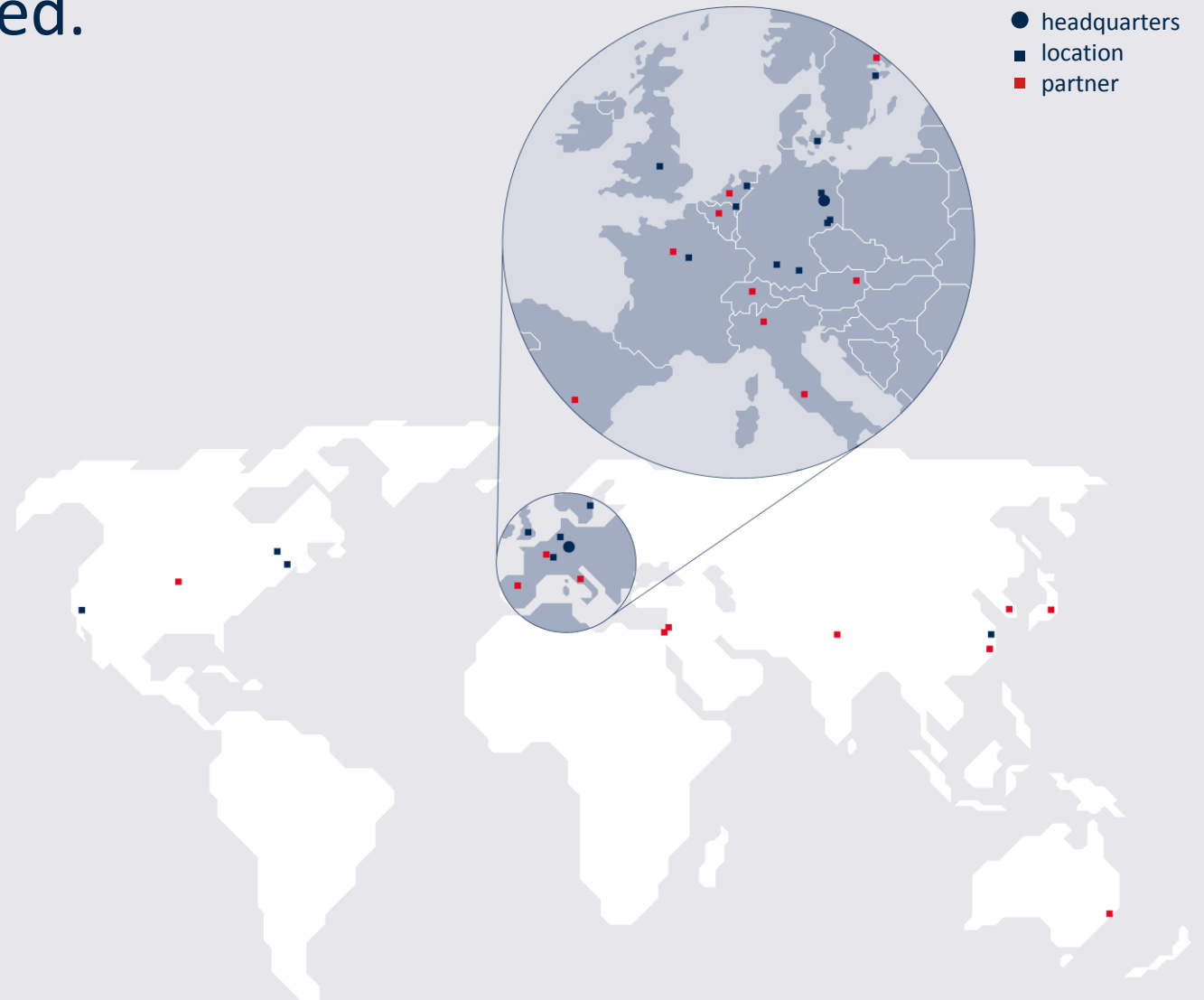
33
sales regions

250
years of experience

OUR PRESENCE

We are internationally positioned.

First Sensor is headquartered in Berlin and represented at six locations in Germany and also operates sales and production sites in the USA, Canada, China, UK, France, Denmark, Sweden and the Netherlands as well as a global network of partners.



OUR EXECUTIVE BOARD

Dr. Rothweiler and Dr. Gollwitzer are experienced industry managers.



Dr. Dirk Rothweiler
CEO

since Jan. 1, 2017

- 2017 CEO, First Sensor AG
- 2008 Executive Vice President Optical Systems, Jenoptik AG
- 2005 Vice President Sales and Service, TCZ
- 2000 Managing Director Asia-Pacific, Süss Microtec Co. Ltd.
- 1999 Director Sales & Marketing, Süss Microtec AG
- 1995 Project Manager for the Semiconductor Technology Division, Carl Zeiss
- 1995 Doctorate from the Department of Engineering, RWTH Aachen



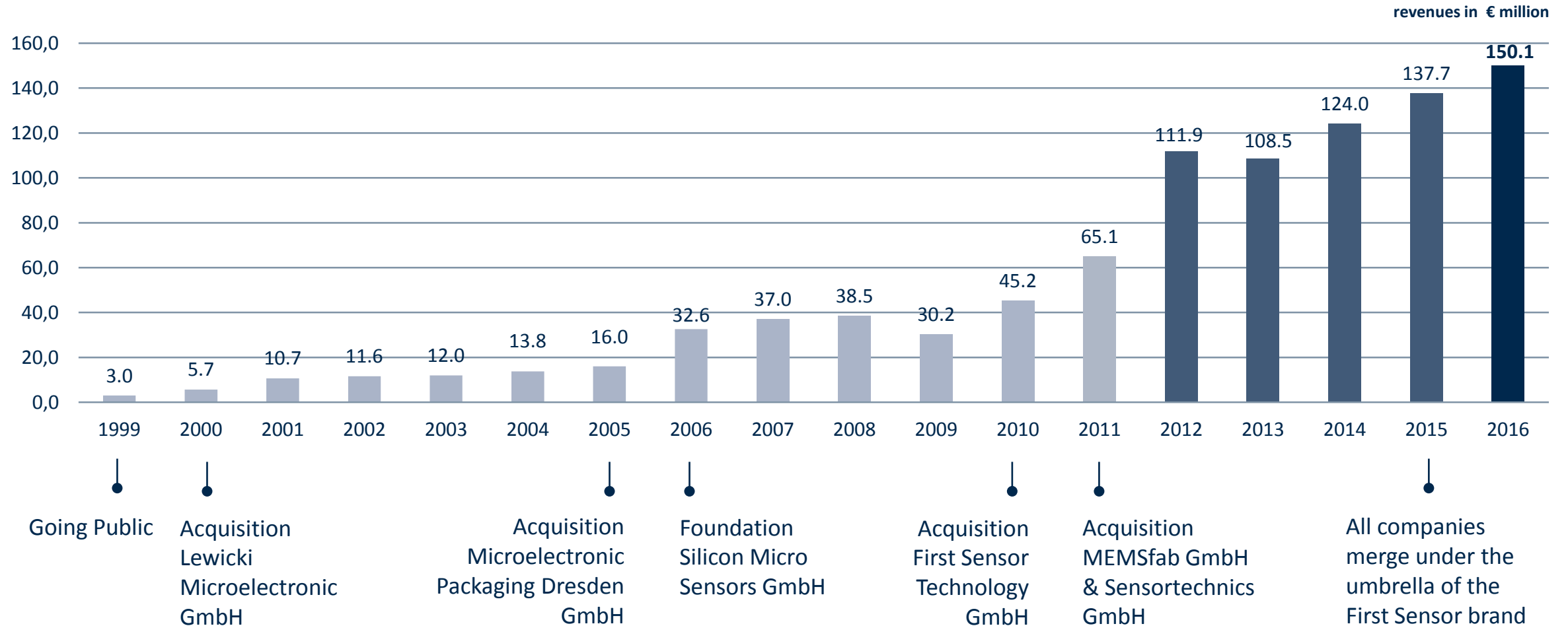
Dr. Mathias Gollwitzer
CFO

since Aug. 10, 2015

- 2015 CFO, First Sensor AG
- 2012 Vice President Group Controlling, EnBW Energie Baden-Württemberg AG
- 2008 CFO, Mercedes-Benz France SAS
- 2006 Director Corporate Controlling, DaimlerChrysler AG
- 2005 CFO, DaimlerChrysler Belgium/Luxembourg NV/SA
- 2002 Director Research and Technology, Daimler AG
- 1999 CEO, Temic Sprachverarbeitung GmbH
- 1995 Director Division Controlling, Telefunken Systemtechnik GmbH
- 1992 Expert Adviser Finance/Controlling, Deutsche Aerospace AG

OUR PATH OF GROWTH

In 2016, the EUR150 million mark was exceeded for the first time.



OUR SALES REGIONS

Germany is our most important market contributing 52% of sales.

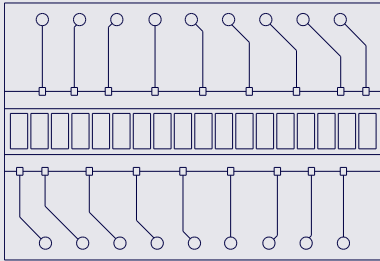


*Q3 2017

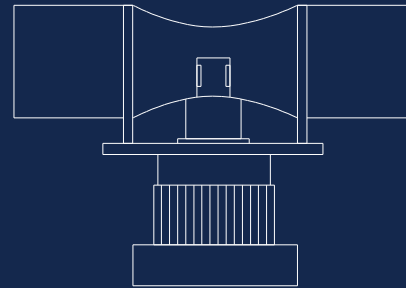
OUR RANGE OF SERVICES

We develop and produce standard products and sensor solutions.

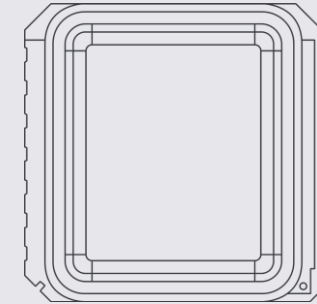
Radiation



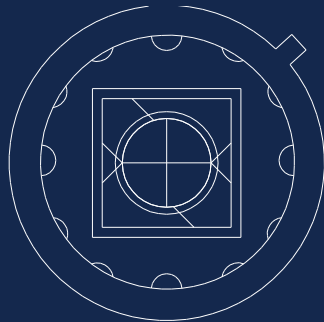
Flow



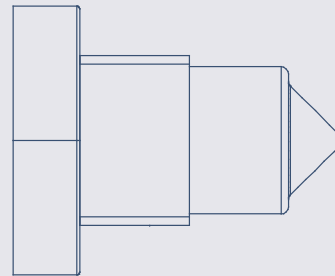
Acceleration



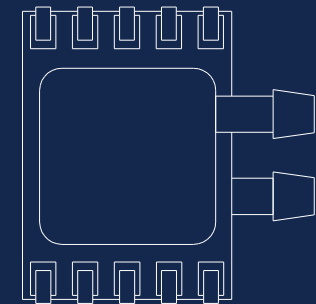
Light



Level



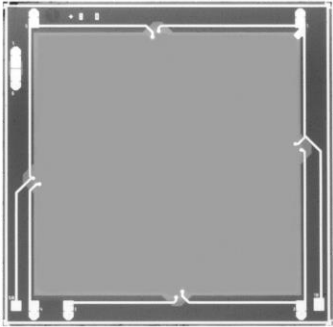
Pressure



OUR COMPETITIVE ADVANTAGE

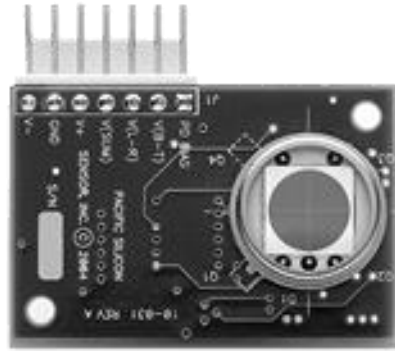
We cover the entire value chain of sensor technology.

Sensor chip



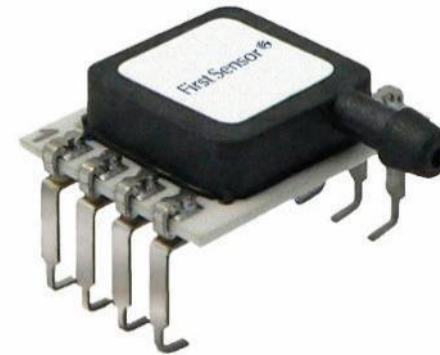
- Silicon based
- converts physical parameters into electrical signals

Packaging



- Connecting microelectronic and non-electronic micro components to a housing

Sensor



- Consists of a sensor chip, a housing and electronics
- The measurement signal can be calibrated

Sensor system



- Measures and preprocesses data
- communicates with other systems

Detect

Detect & Understand

OUR MARKETS

We focus on the growth markets Industrial, Medical and Mobility.

First Sensor  Industrial

Innovative solutions for the automation of industry

- Industrial Process Control
- Radiation and Security
- Smart Buildings
- Length Measurement
- Aerospace


Sales share 2016
48%

First Sensor  Medical

Reliable technology whenever it is needed

- Diagnostics
- Medical Respiration and Pneumology
- Dialysis and Infusion

Sales share 2016
21%

First Sensor  Mobility

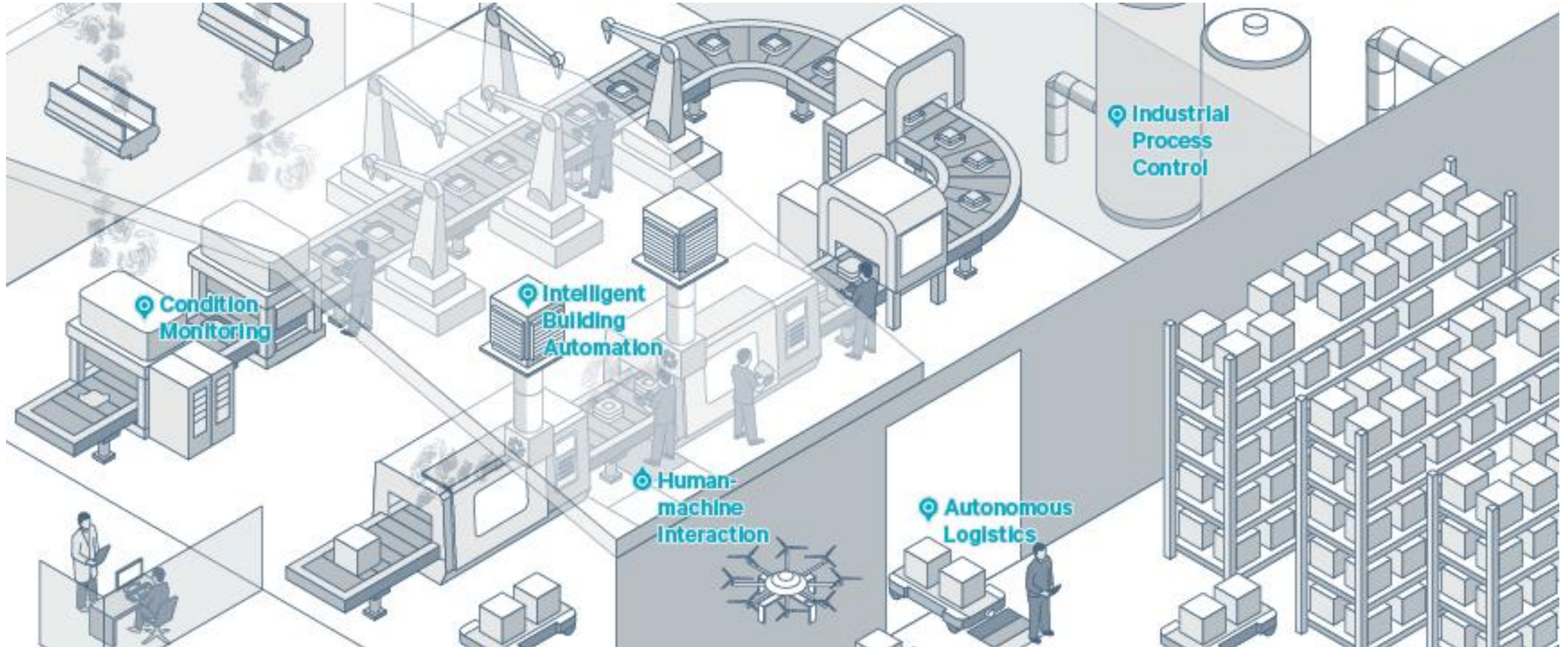
New ideas for intelligent mobility

- Cameras and camera systems
- Pressure Sensors
- Optical Sensors
- Flow Sensors

Sales share 2016
31%

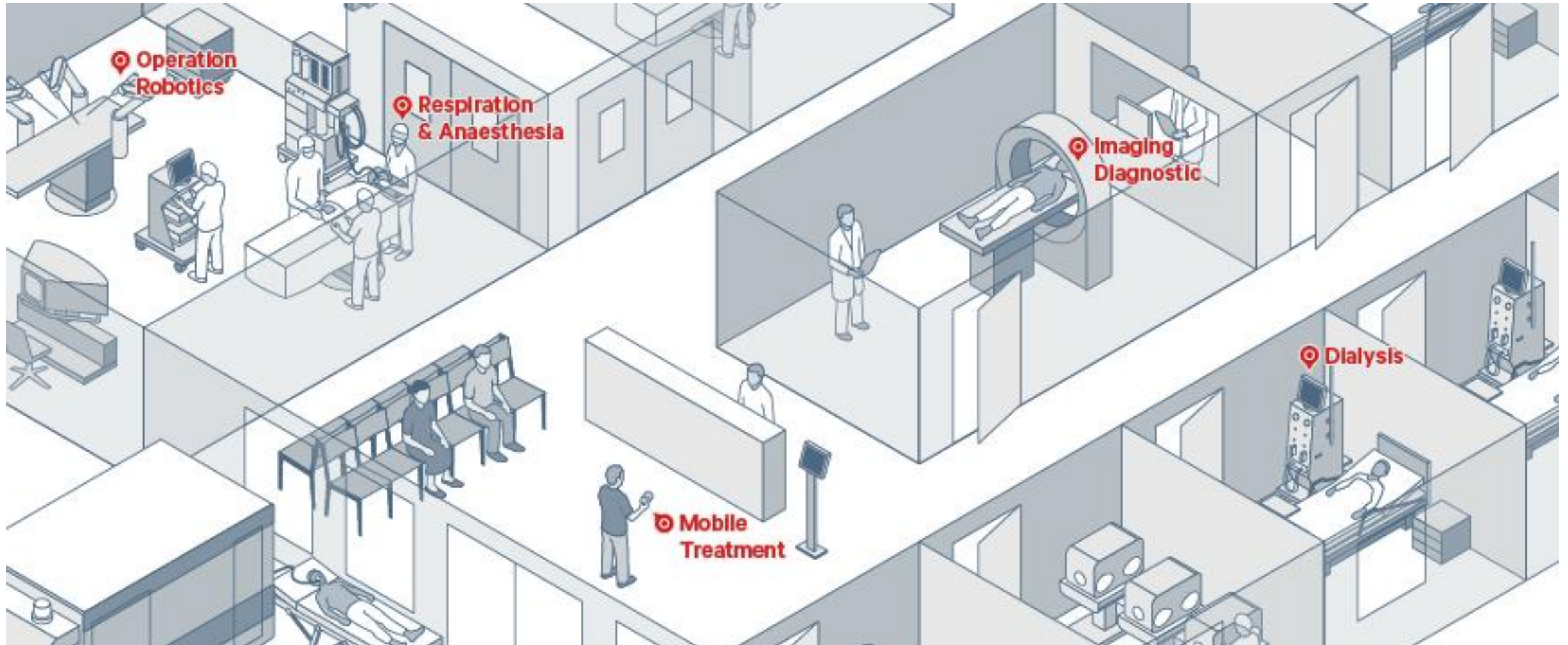
OUR TARGET MARKET INDUSTRIAL

We are there when smart things become standard.



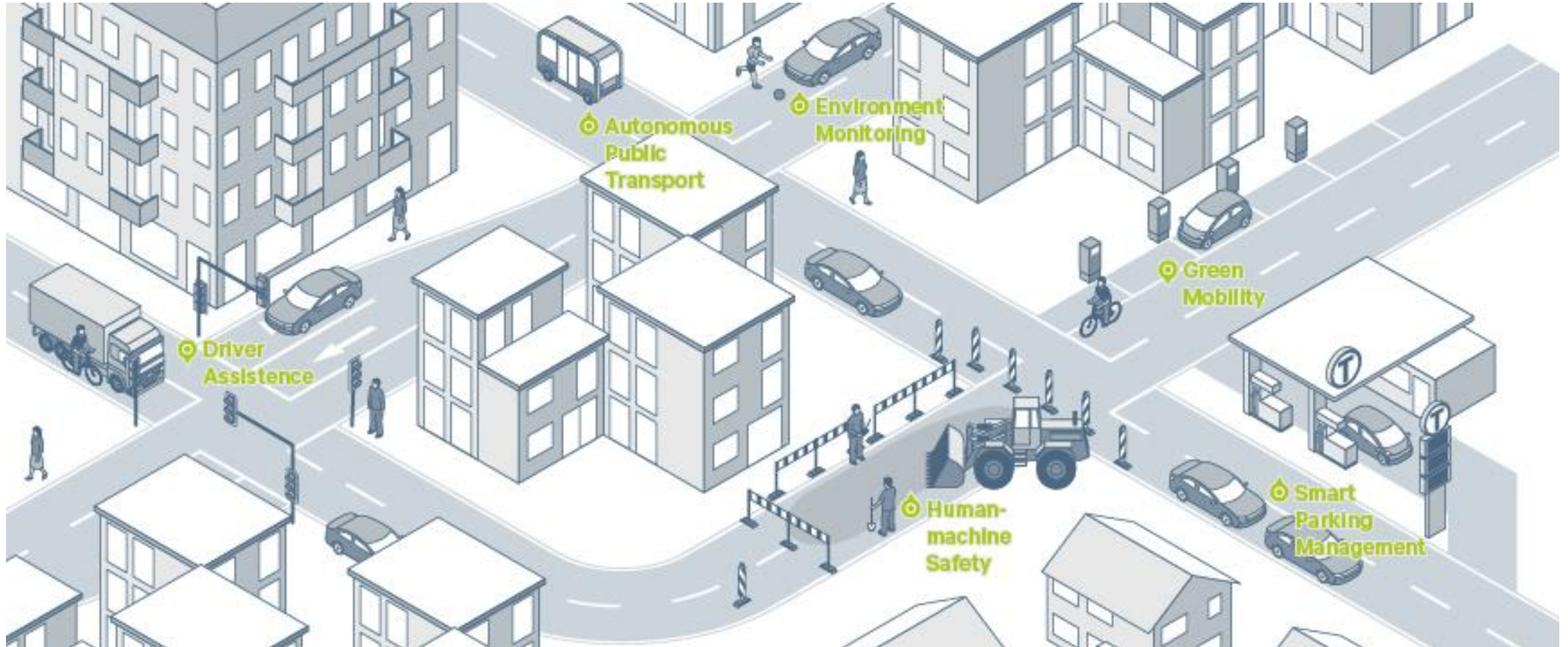
OUR TARGET MARKET MEDICAL

We are there when little miracles start being taken for granted.



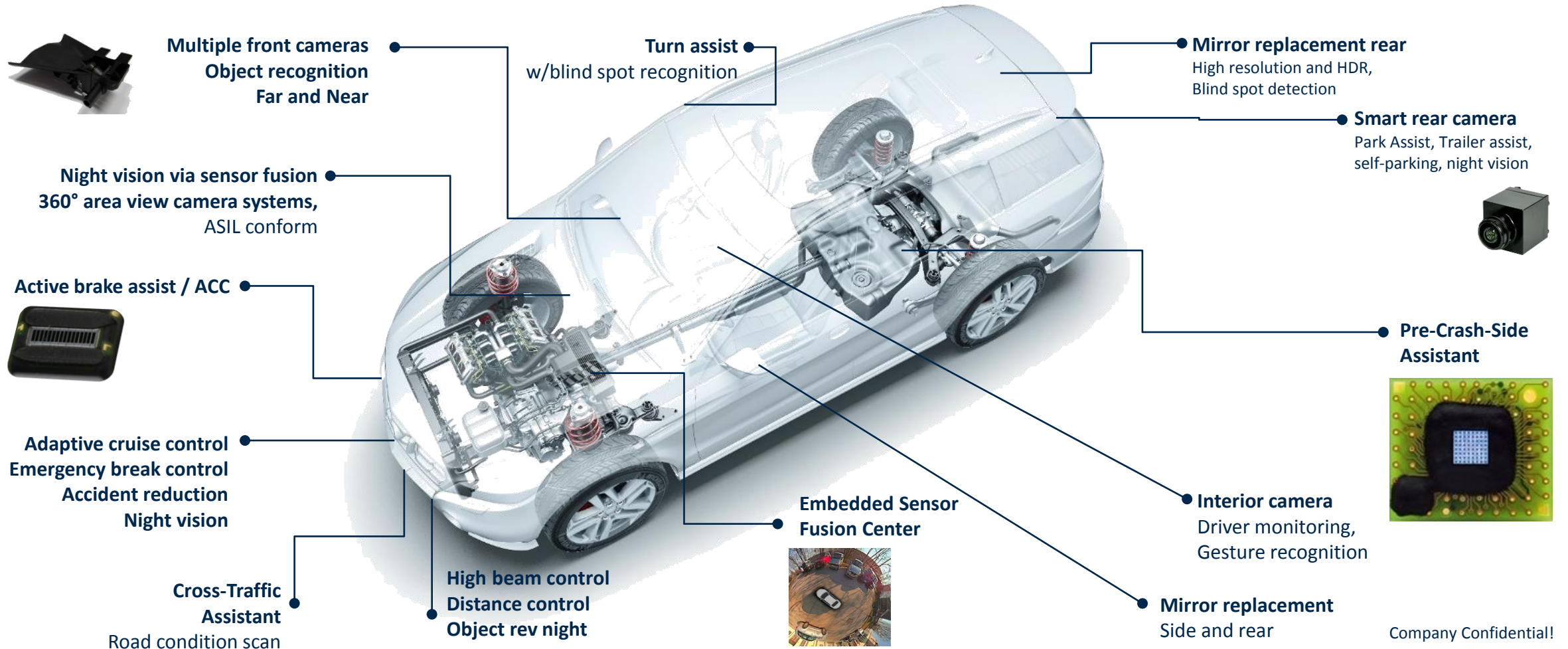
OUR TARGET MARKET MOBILITY

We are there when mobility is redefined.



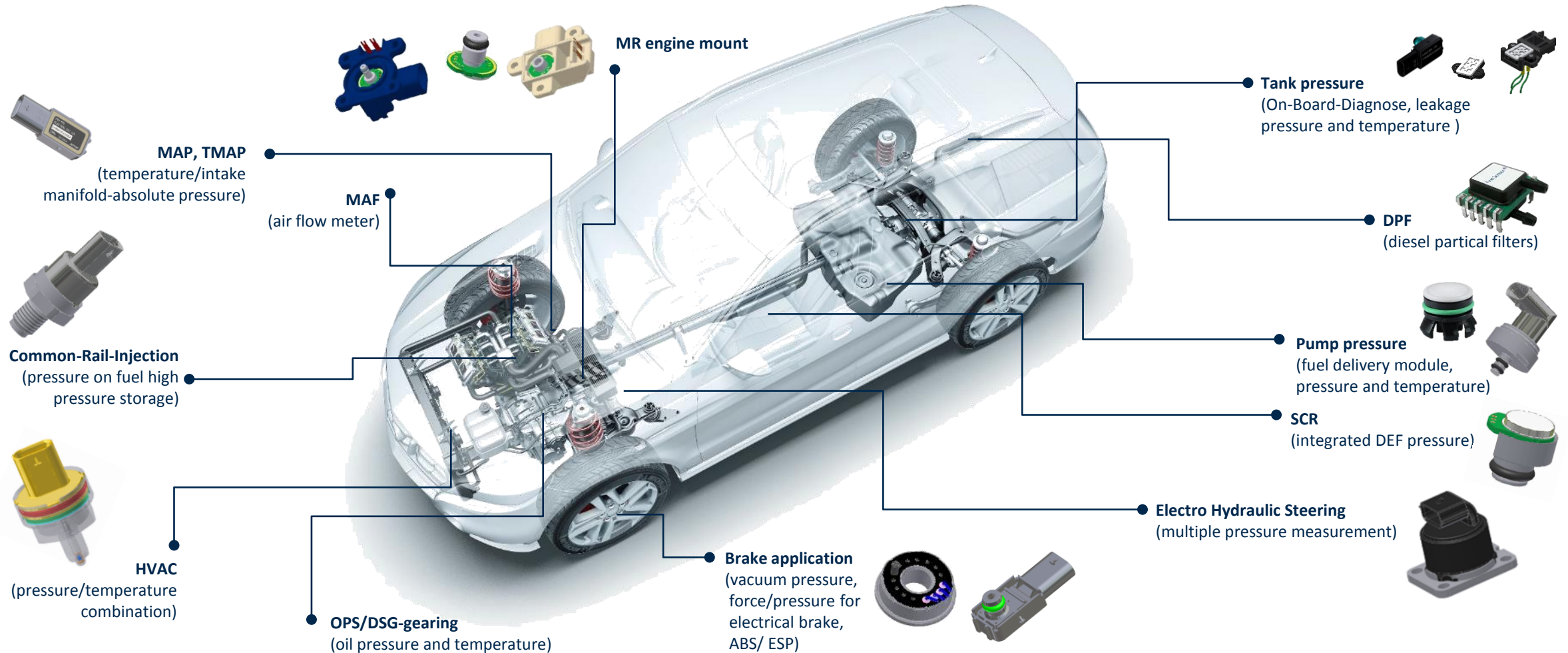
OUR TARGET MARKET MOBILITY

We offer a optical sensors and cameras for the automotive industry.



OUR TARGET MARKET MOBILITY

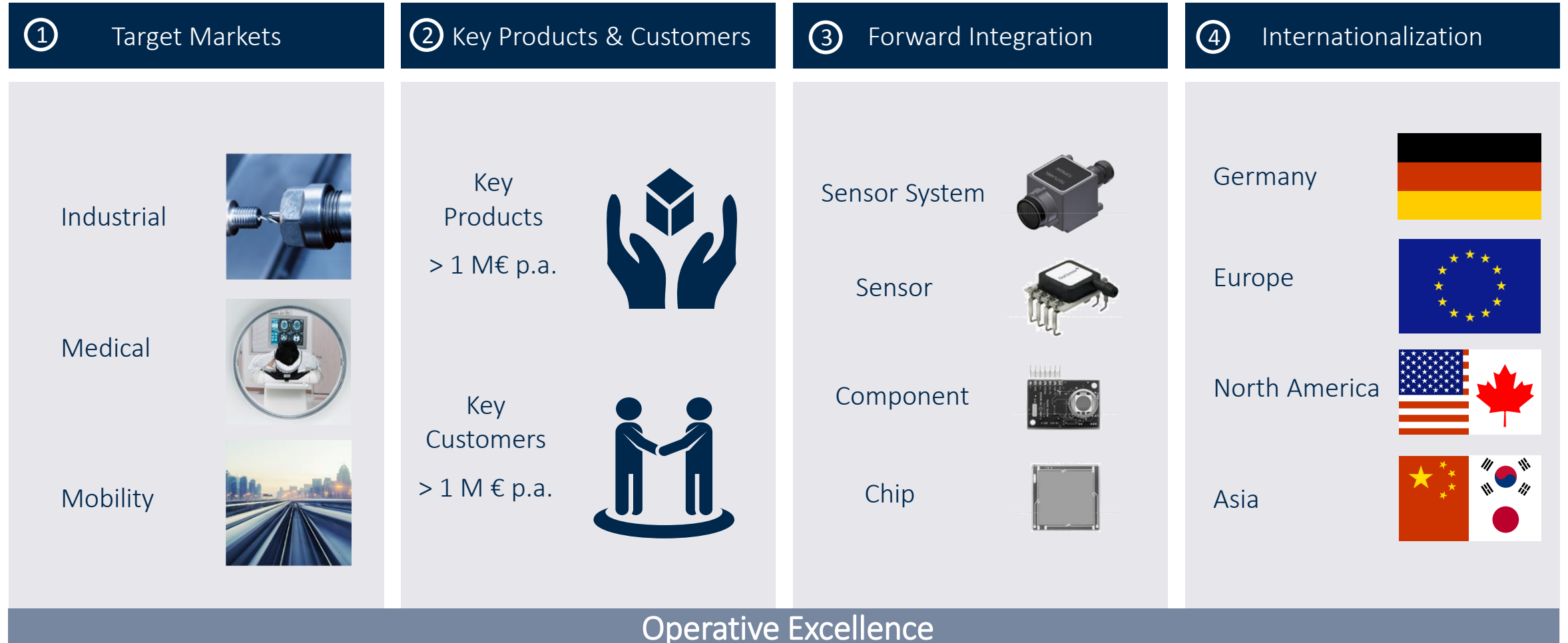
Furthermore, we are an established OEM supplier for pressure sensors.



STRATEGIC PERSPECTIVE FOR PROFITABLE GROWTH

OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



DIMENSION 1: CLEAR FOCUS ON OUR TARGET MARKETS

We participate in above average growth markets.



Industrial



+ 6.0 % up to 2018
+ 10.8 % up to 2020

Gartner®

+ 9.0 % up to 2020



Medical



+ 11.0 % up to 2020



Mobility



+ 13.0 % up to 2018
+ 10.8 % up to 2020

AMA

Verband für Sensorik + Messtechnik

+ 5.0 % in 2017

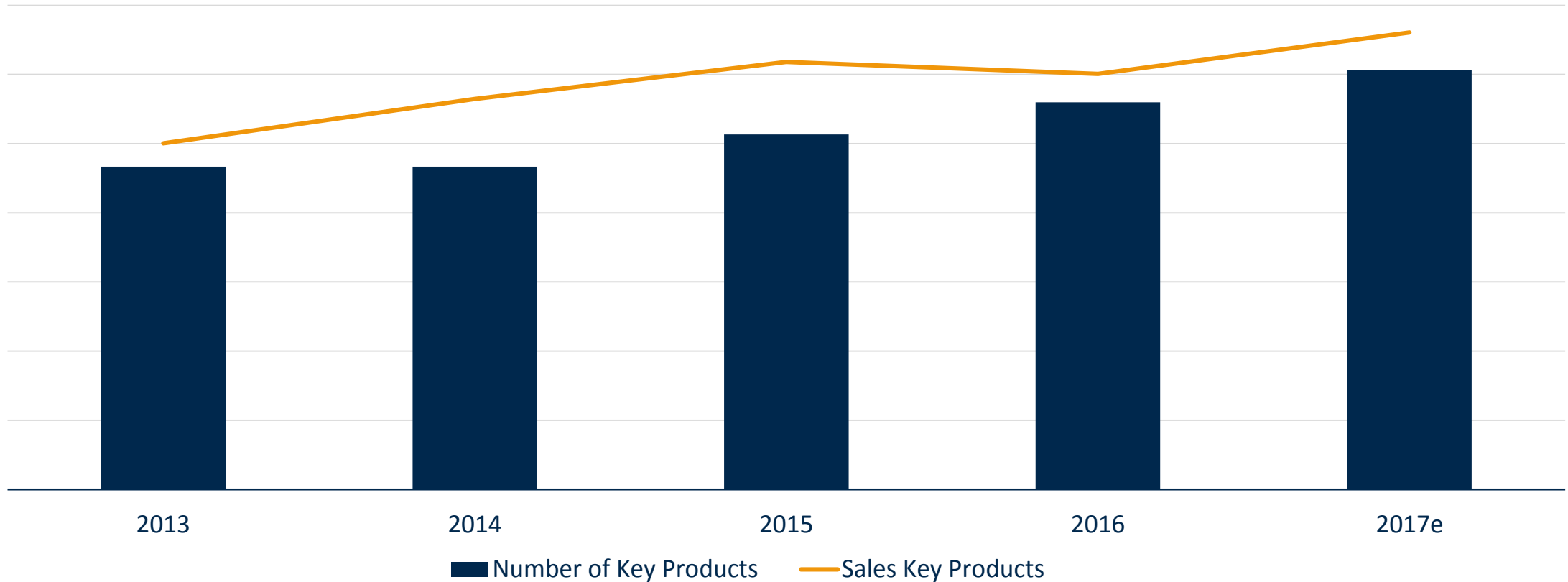
OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



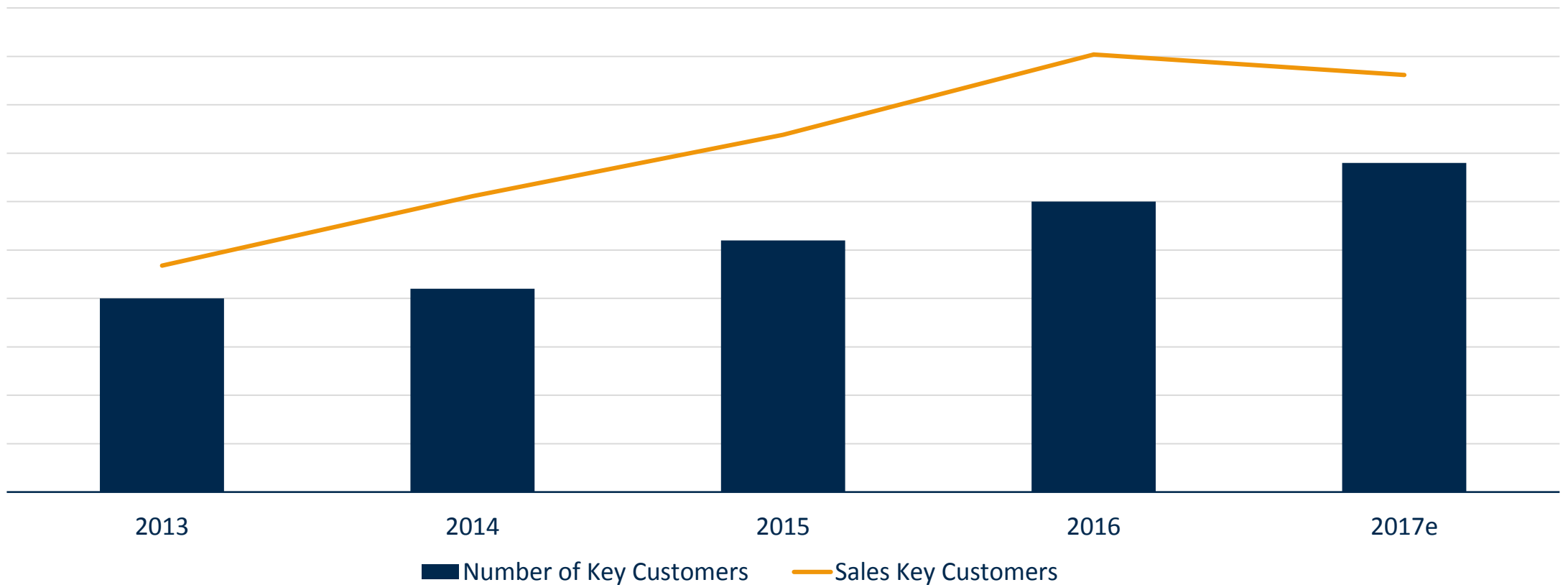
DIMENSION 2: CLEAR FOCUS ON KEY PRODUCTS

In the next years, we will grow with existing and new key products.



DIMENSION 2: CLEAR FOCUS ON KEY CUSTOMERS

In the next years, we will grow with existing and new key customers.



DIMENSION 2: CLEAR FOCUS ON KEY PRODUCTS & CUSTOMERS

Why is this efficient?

Key Products

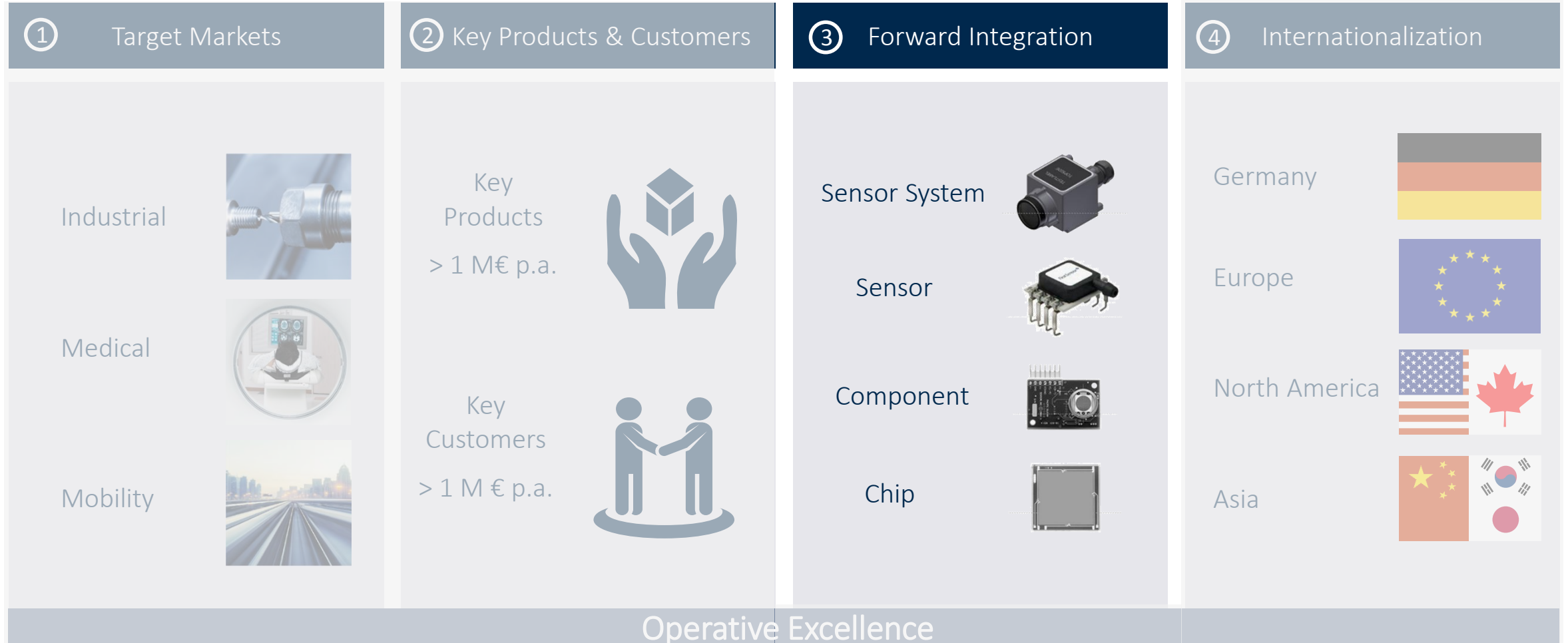
Key Customers

- ▶ Single respective product developments result in relatively large quantities and therefore sales volumes.
- ▶ Sales per head in both sales and engineering increases – our existing team will be able to handle larger revenue streams.
- ▶ „Mix & Noise“ in operations are decreased due to reduced parts variety and transactions per revenue.
- ▶ Our supply chain and own production will gain in productivity and can be managed with fewer resources per revenue.
- ▶ With higher quantities per part our purchasing power will increase.
- ▶ With more varietal purity we increase the stability of our value creation process.
- ▶ Lead time, on time delivery and quality will improve as a result.

Our growth becomes more scalable and our profitability increases.

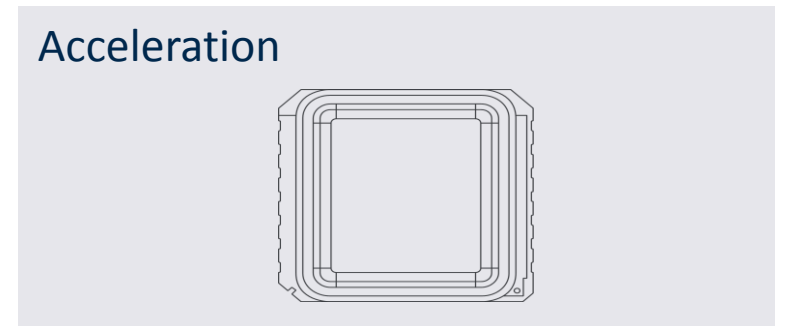
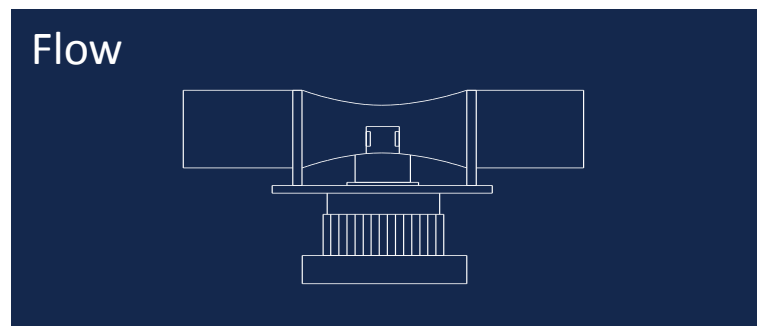
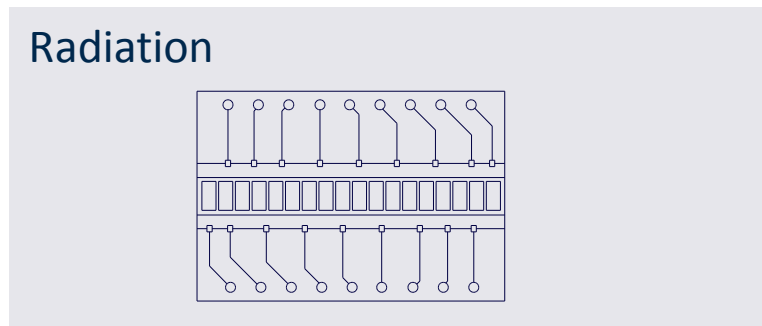
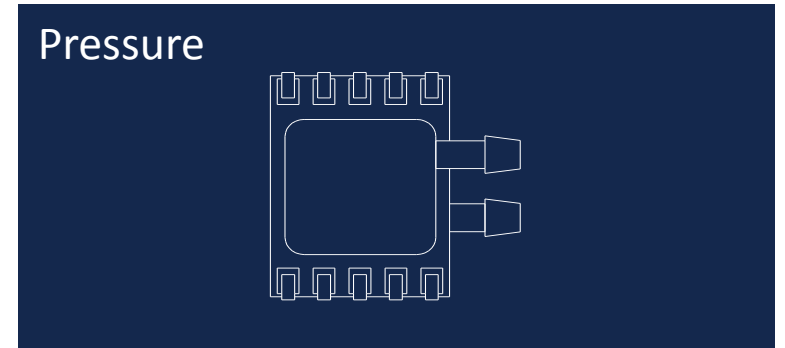
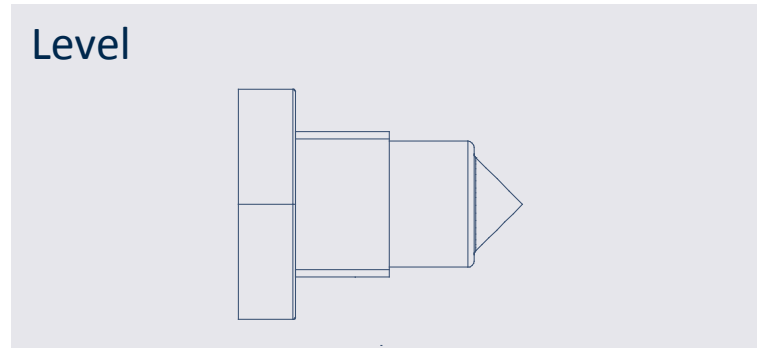
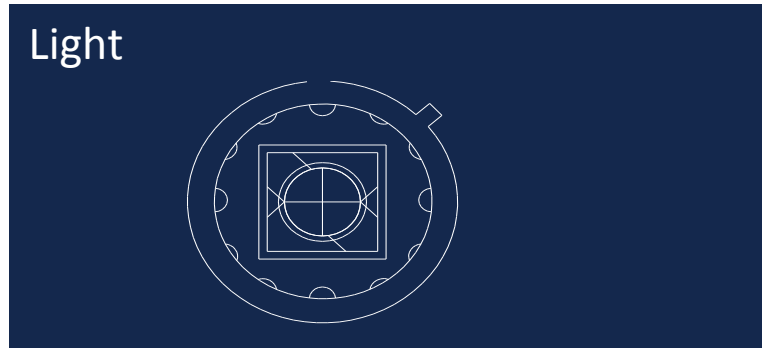
OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



DIMENSION 3: CLEAR FOCUS ON FORWARD INTEGRATION

We base our forward integration initiatives on clear product roadmaps.



Integrated Manufacturing Service



Multi Sensor Systems



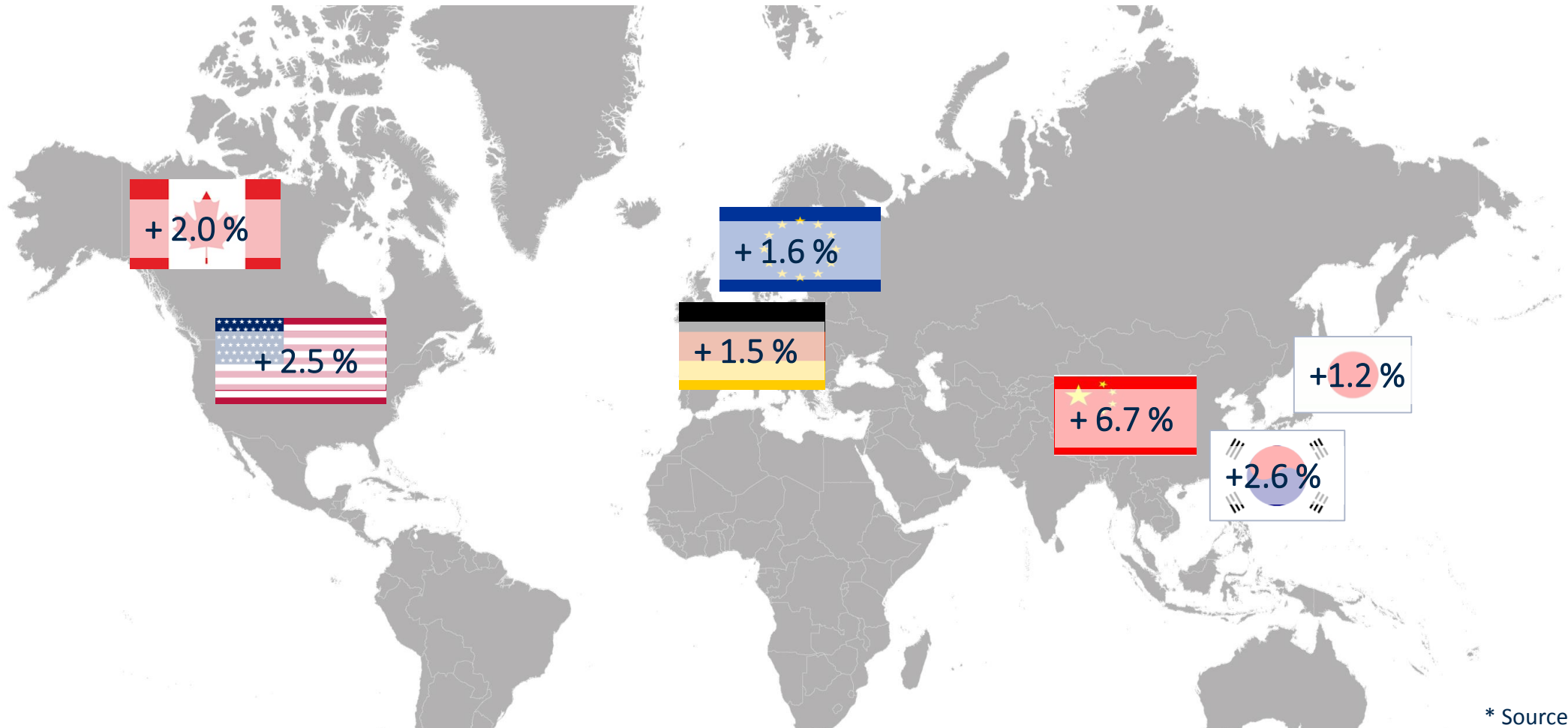
OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



DIMENSION 4: CLEAR FOCUS ON INTERNATIONALIZATION

We will participate in the solid growth* of our targeted sales regions.



* Source: IWF

OUR STRATEGY FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions.



THE FUNDAMENT: FOCUS ON OPERATIVE EXCELLENCE

We concentrate on five core initiatives.

Top Initiatives

- ▶ Lead Time, On-Time Delivery, Quality
- ▶ Core Processes
- ▶ One ERP
- ▶ T's & C's Harmonization
- ▶ Portofolio Optimization

BESIDES OUR GUIDANCE FOR 2017, THIS APPROACH TOWARDS PROFITABLE GROWTH SUPPORTS OUR MID-TERM ASPIRATION.

Guidance 2017

Sales **140 – 145** M €

EBIT-Margin **5 – 6** %

Mid-term Aspiration

Sales **10** % CAGR

EBIT-Margin **10** %

GROWTH DRIVER LIDAR

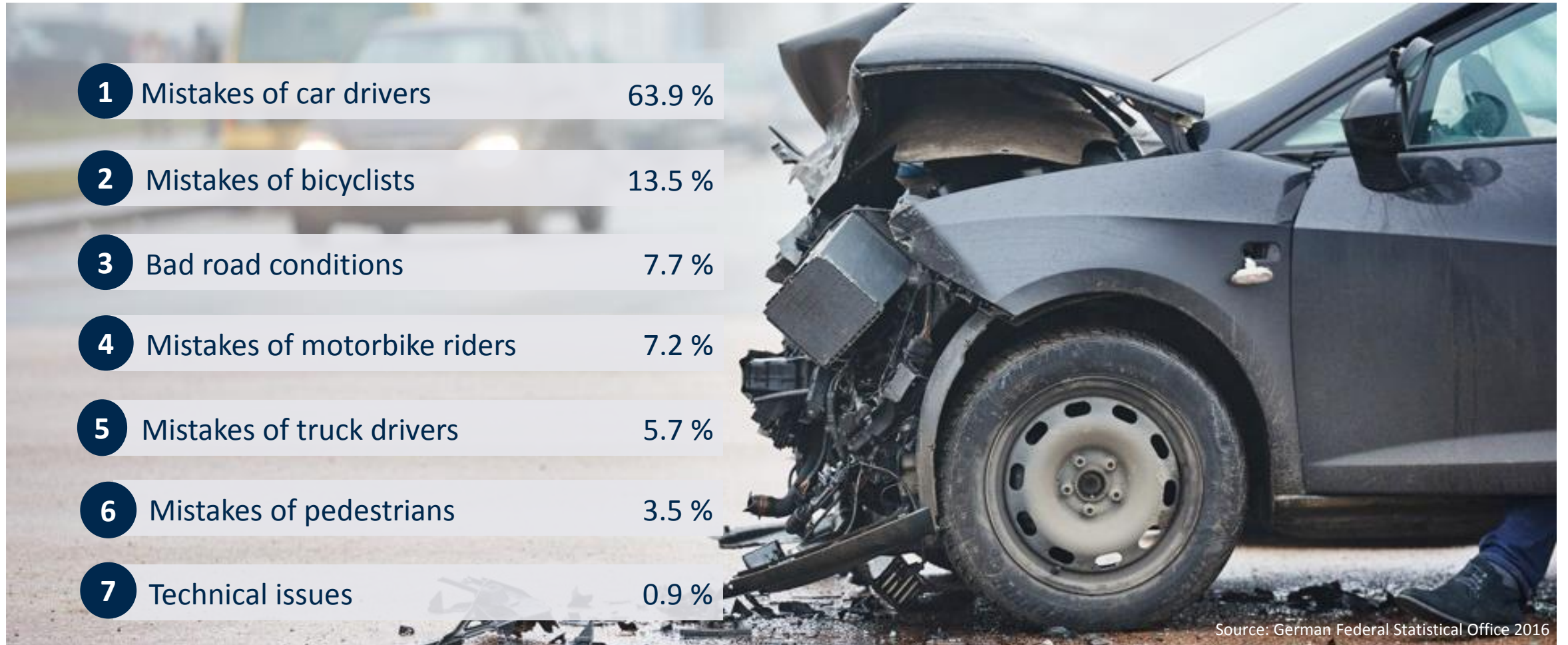
GROWTH DRIVER LIDAR

LiDAR is relevant factor within our strategy for profitable growth.



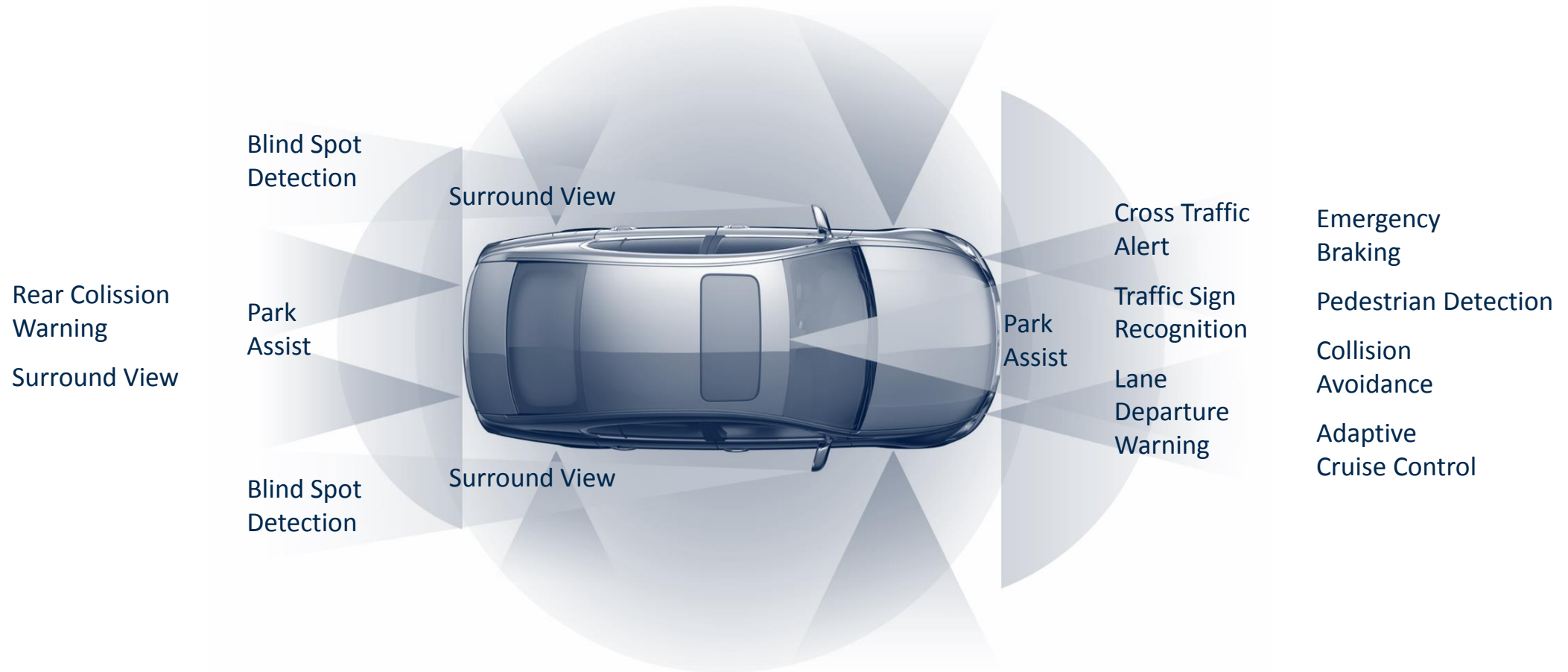
GROWTH DRIVER LIDAR

Main reason for accidents are preventable human mistakes.



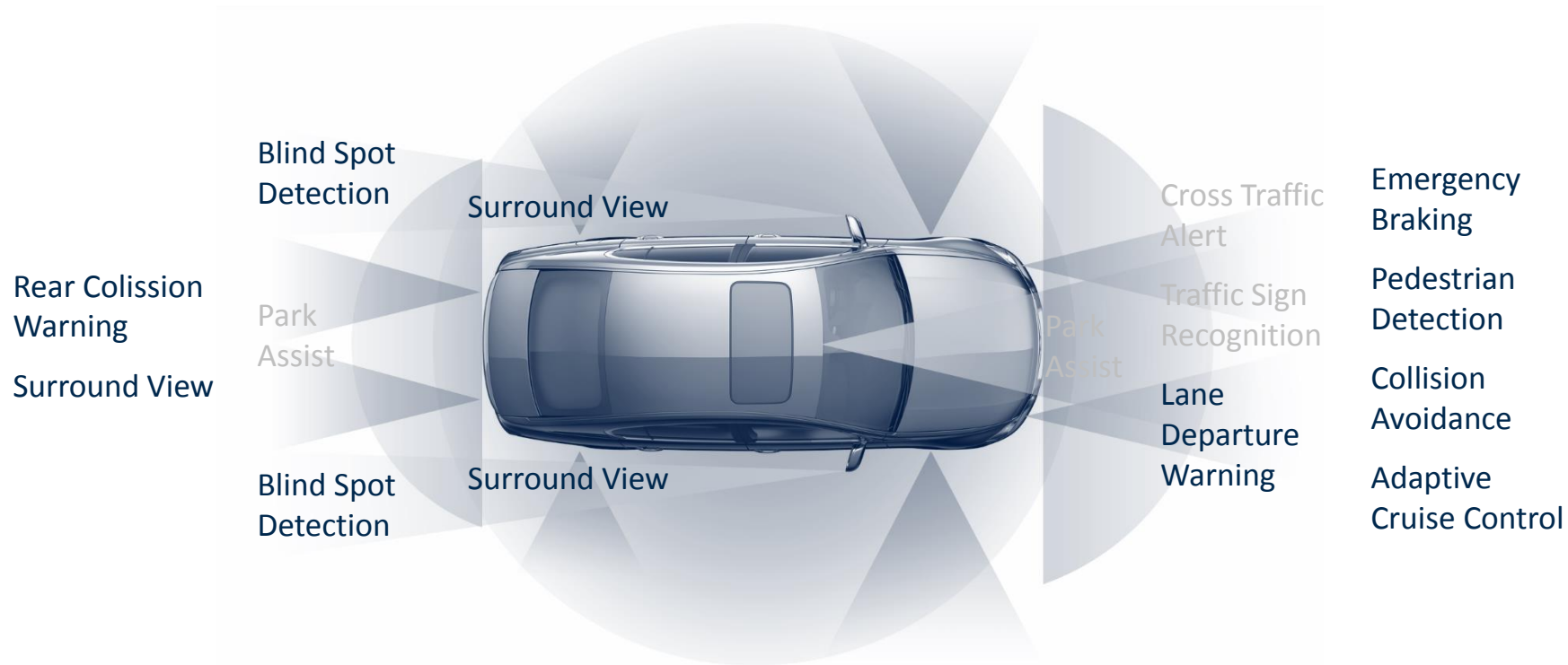
GROWTH DRIVER LIDAR

Sensors in vehicles assist the drivers and provide more road safety.



GROWTH DRIVER LIDAR

LiDAR is an important technology for many of these safety applications.



GROWTH DRIVER LIDAR

Reason: LiDAR provides the highest resolution even for large distances.

| Criteria | LIDAR (pulsed ToF) | Radar | | Ultra-sonic | Cameras | | PMD |
|-----------------------------|----------------------------------|-----------------------------|------------------|-------------|-------------------------|-----------------------|-----------------------|
| | | Short distance | Long distance | | Mono | Stereo | |
| Max range (m) | 150 - 250 | 55 - 100 | 150 - 200 | 2 - 4 | 40 - 60 (120 coarse) | 60 | 7 - 10 |
| Min range (m) | 1 | 0,25 - 1 | 1 | 0.25 | 0.3 | 0.3 | 0.3 - 0.8 |
| Precision (m) | 0.1 (newer: 0.04) | 0.25 - 0.75 | 0.3 - 3.75 | Very good | 3 | 0.2 - 0.3 | good |
| Velocity measurement | Indirectly via distance t1-t0 | directly via Doppler effect | | hardly | hardly | Indirect via dist. | Indirect via dist. |
| Horizontal field of view | 30° - 180° | 55° Scan: 120° | 16°, Scan: 60° | 60° | 45° - 190° | 45° | 40 - 69° |
| Horizontal resolution | 0.01° - 1° | 10.5° | 3.5° | bad | < 0.1° - 0.3° | < 0.1° | 0.2° |
| Vertical field of view | 3° - 16° | 3° - 13° | 3° - 13° | 30° | 45° | 45° | 40 - 56° |
| Vertical resolution | 0.8° - 1° | 4.5° | 4.5° | bad | < 0.1° | < 0.1° | 0.2° |

GROWTH DRIVER LIDAR

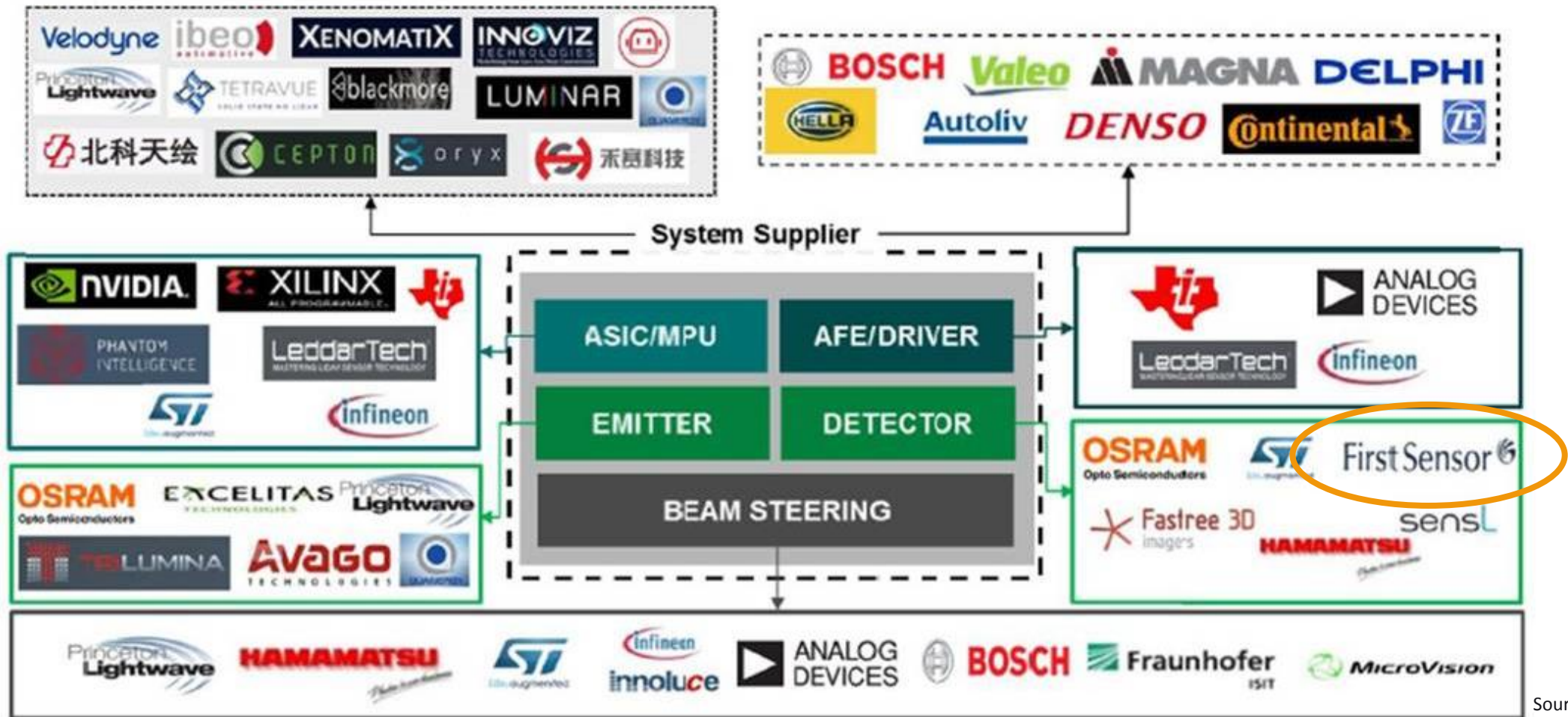
In LiDAR systems different components work hand in hand.



Source: Velodyne

GROWTH DRIVER LIDAR

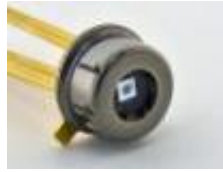
First Sensor is an important supplier for the detectors in LiDAR systems.



Source: YOLE

GROWTH DRIVER LIDAR

With our APD we have captured a leading share for more than 10 years.



Single APD with amplifier



DARPA Urban Challenge; First Sensor APDs in all winning teams



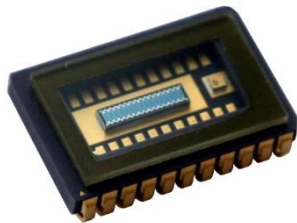
Industrial hybrids (APD+TIA in one package)



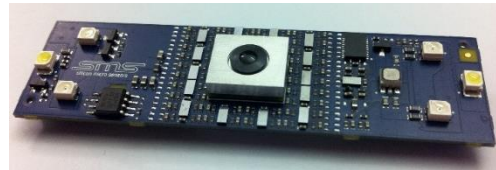
Few Pixel APD-Array in SMD package for ACC / AEC-Q 101 qualified by FIS



12 Pixel APD-Array in ceramic package for ACC



Gesture recognition with 64 pixel APD-Array



Receiver module with APD-Array, HV, TIA, MUX, Timing discriminator

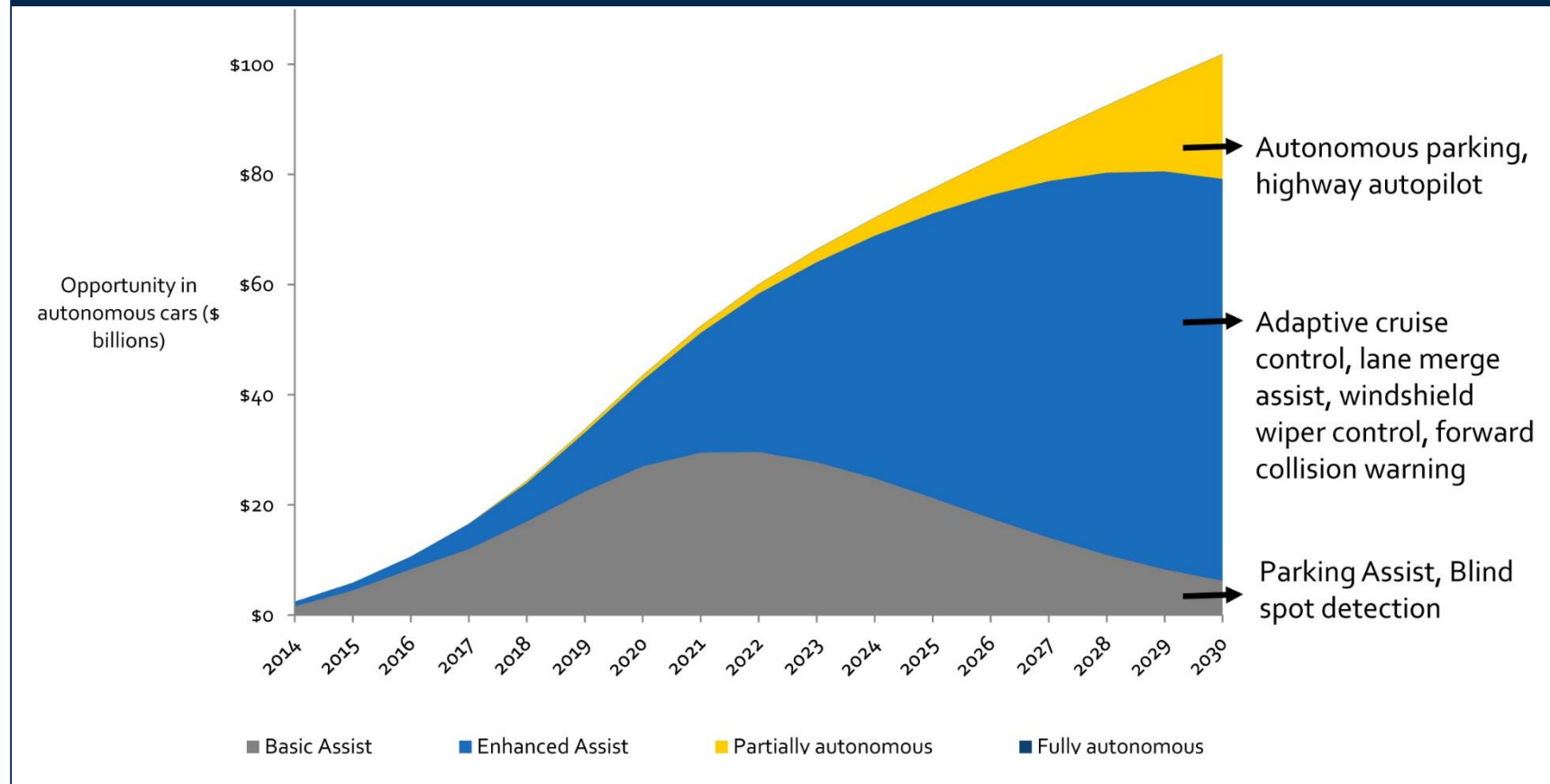


Receiver module with APD and electronics integrated in one package

GROWTH DRIVER LIDAR

Therefore we will participate in the growth of the driver assist market.

Global driver assist market will grow to \$102 billion by 2030

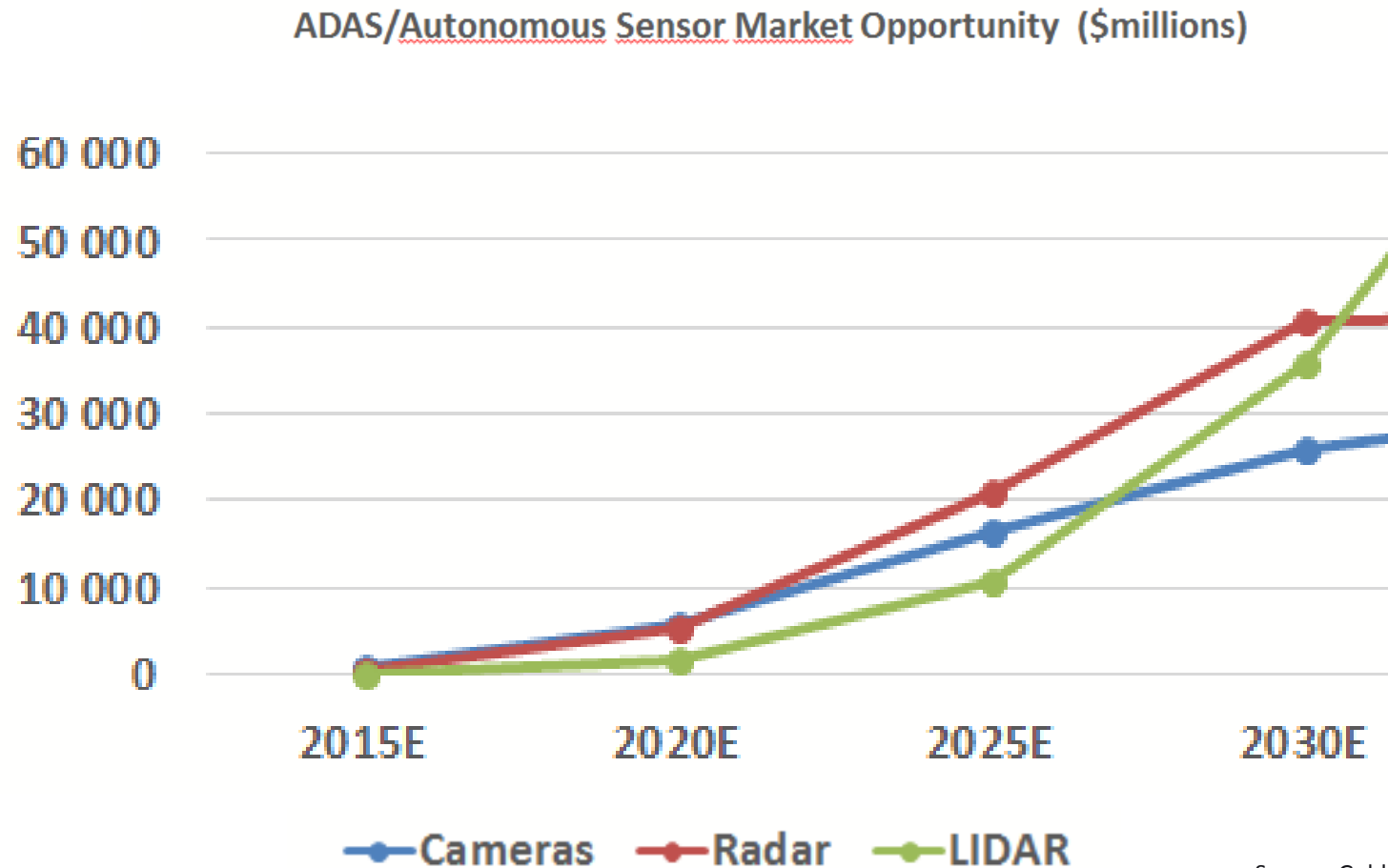


- 2017: 94 m vehicles produced (2.2% CAGR 17-22, 2017 IHS Markit)
- Automotive semiconductor revenue for ADAS grows with 20.9% (CAGR 17-22, 2017 IHS Markit)
- Estimates as high as 10% of new cars with self-driving features in 2020

Source: Lux Research 2017

GROWTH DRIVER LIDAR

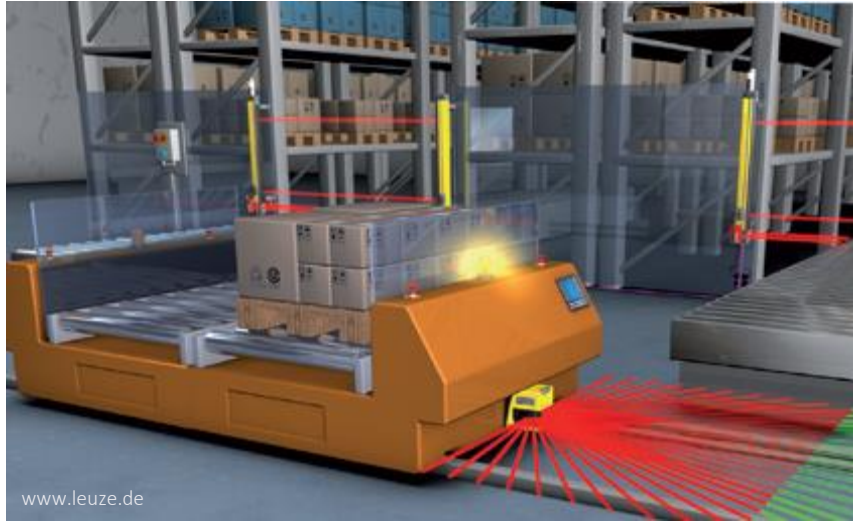
In this growing mobility market LiDAR will play the most important role.



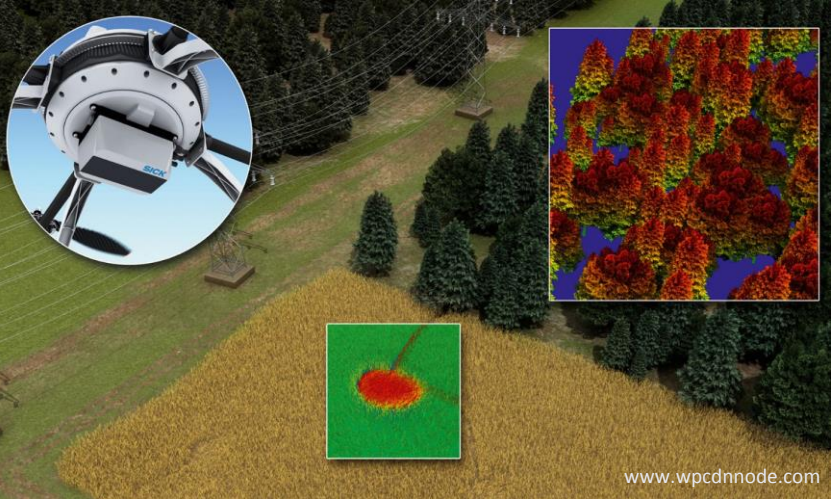
Source: Goldman Sachs Global Investment Research

GROWTH DRIVER LIDAR

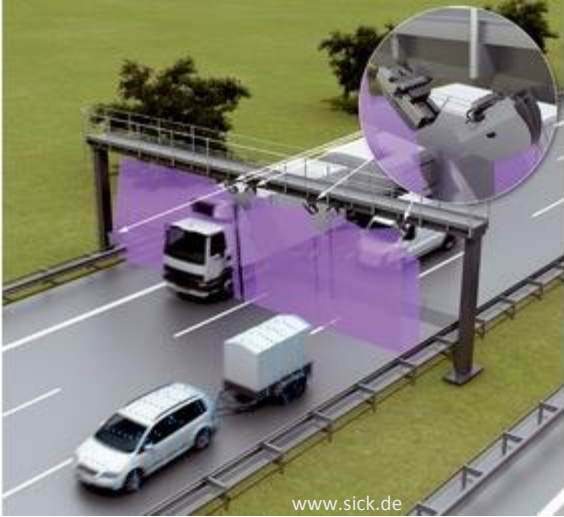
But LiDAR also has applications in the industrial market, e.g. logistics...



GROWTH DRIVER LIDAR ...mapping and construction...



GROWTH DRIVER LIDAR ...and traffic control & security.



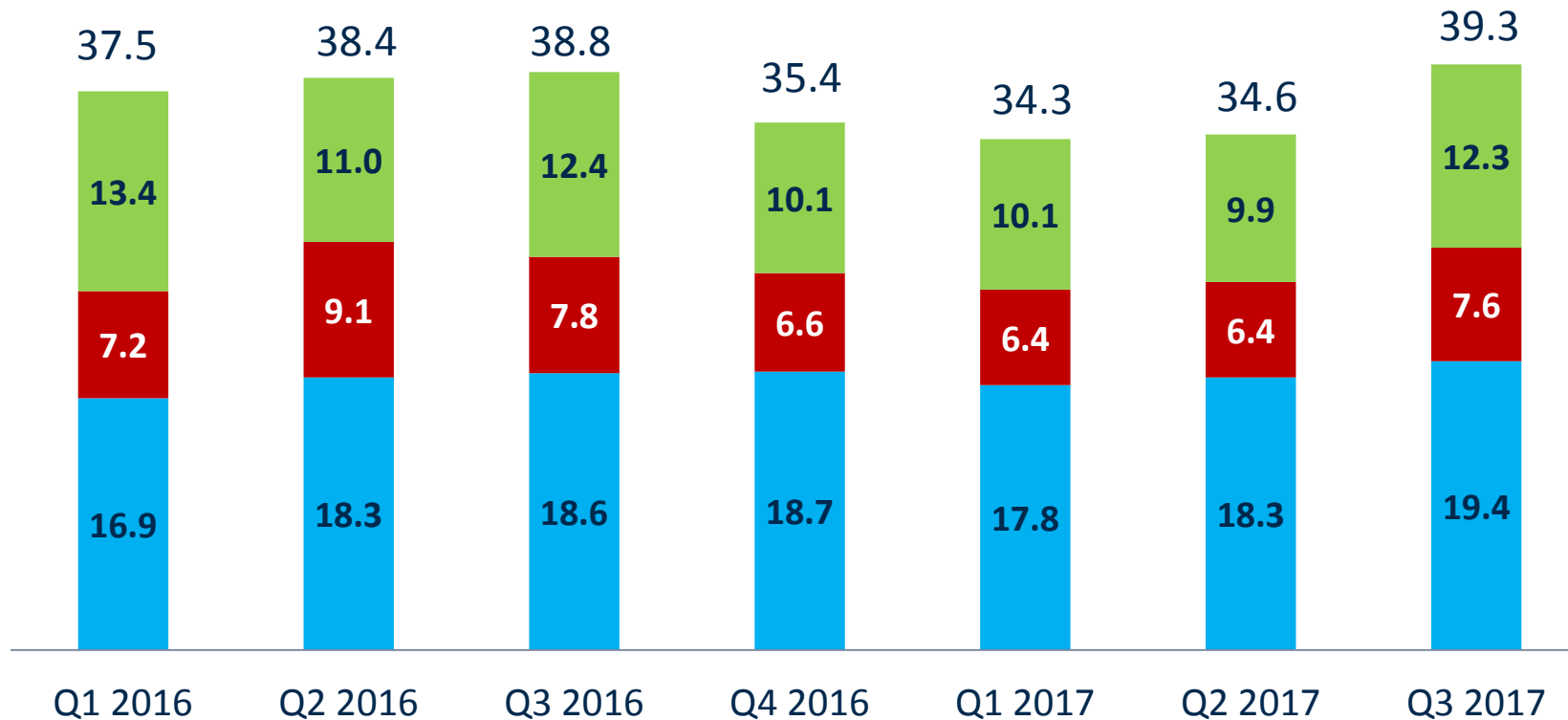
Q3 INTERIM REPORT 2017

Q3 INTERIM REPORT 2017

Q3 sales with € 39.3 million back on track; + 1.3 % over previous year

in € million

■ INDUSTRIAL ■ MEDICAL ■ MOBILITY



Comments

Dynamic start into the second half of 2017

Sales up 1.3 % on Q3 2016

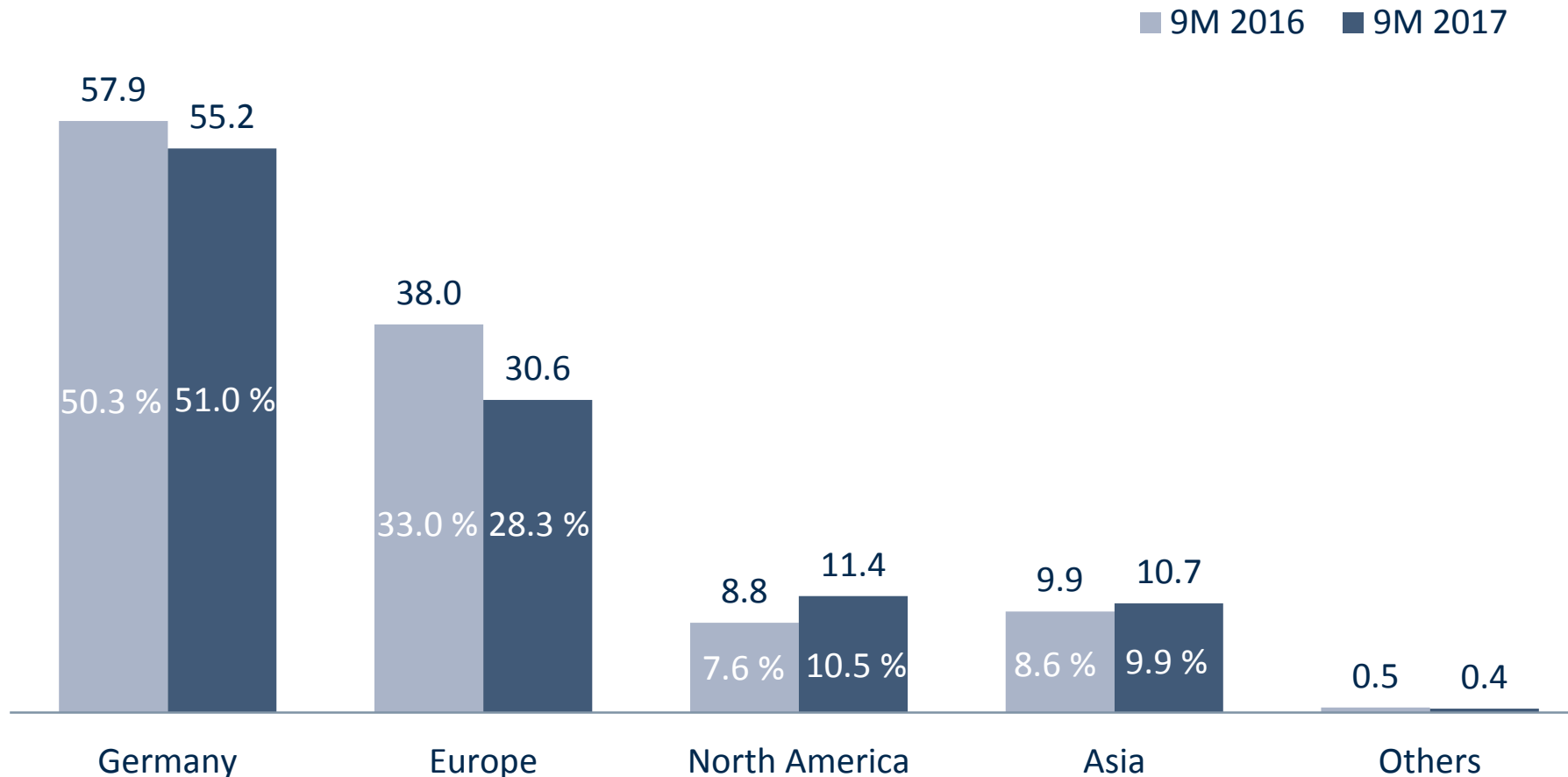
IND: +4.1%, MED: -3.0%, MOB: -0,4% (qoq)

Catch-up effect on slow H1 and early deliveries before year-end closing of production

Q3 INTERIM REPORT 2017

Share of sales in North America and Asia further climbing

Sales in € million, sales share in %



Comments

Germany still accounts for half of sales

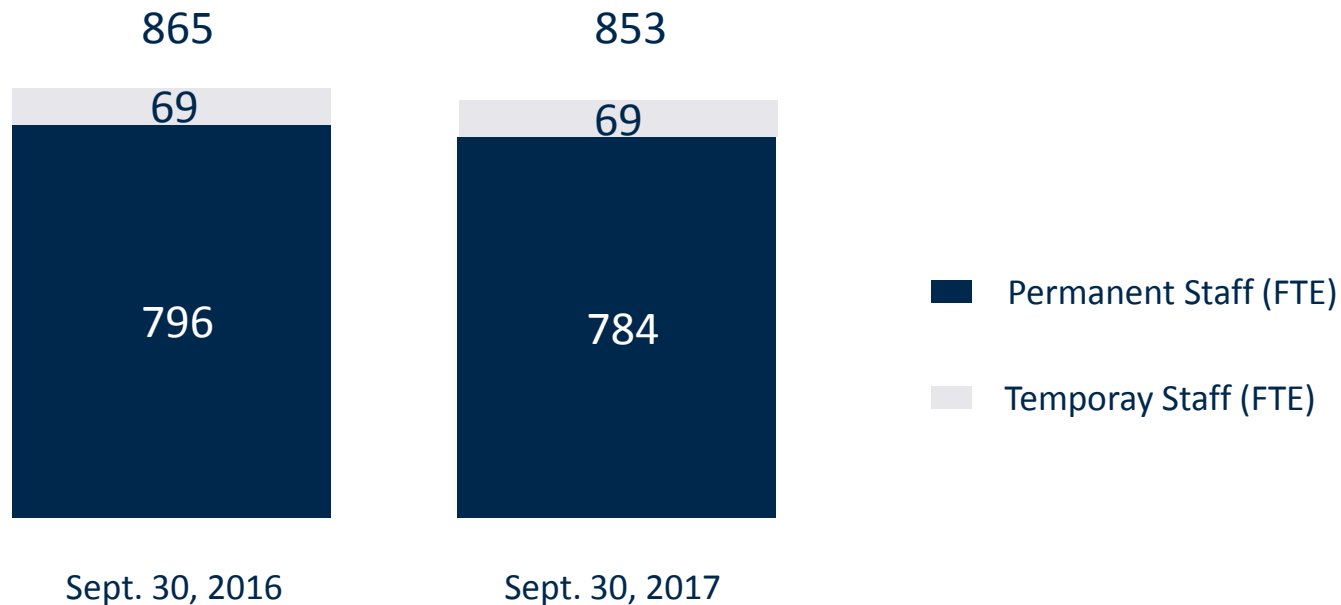
Other European Countries contribute 28.3 %

Strong performance in North America – sales doubled within the last two years – and in Asia

Q3 INTERIM REPORT 2017

Sales per employee rises to 50.1 TEUR in Q3 2017

| | Q3 2016 | Q3 2017 | |
|---------------------|-----------------|-----------------|-------|
| personnel expenses: | € 11.2 million | € 11.3 million | +1.6% |
| sales per employee: | € 48.8 thousand | € 50.1 thousand | -2.6% |



Comments

Number of employees largely unchanged

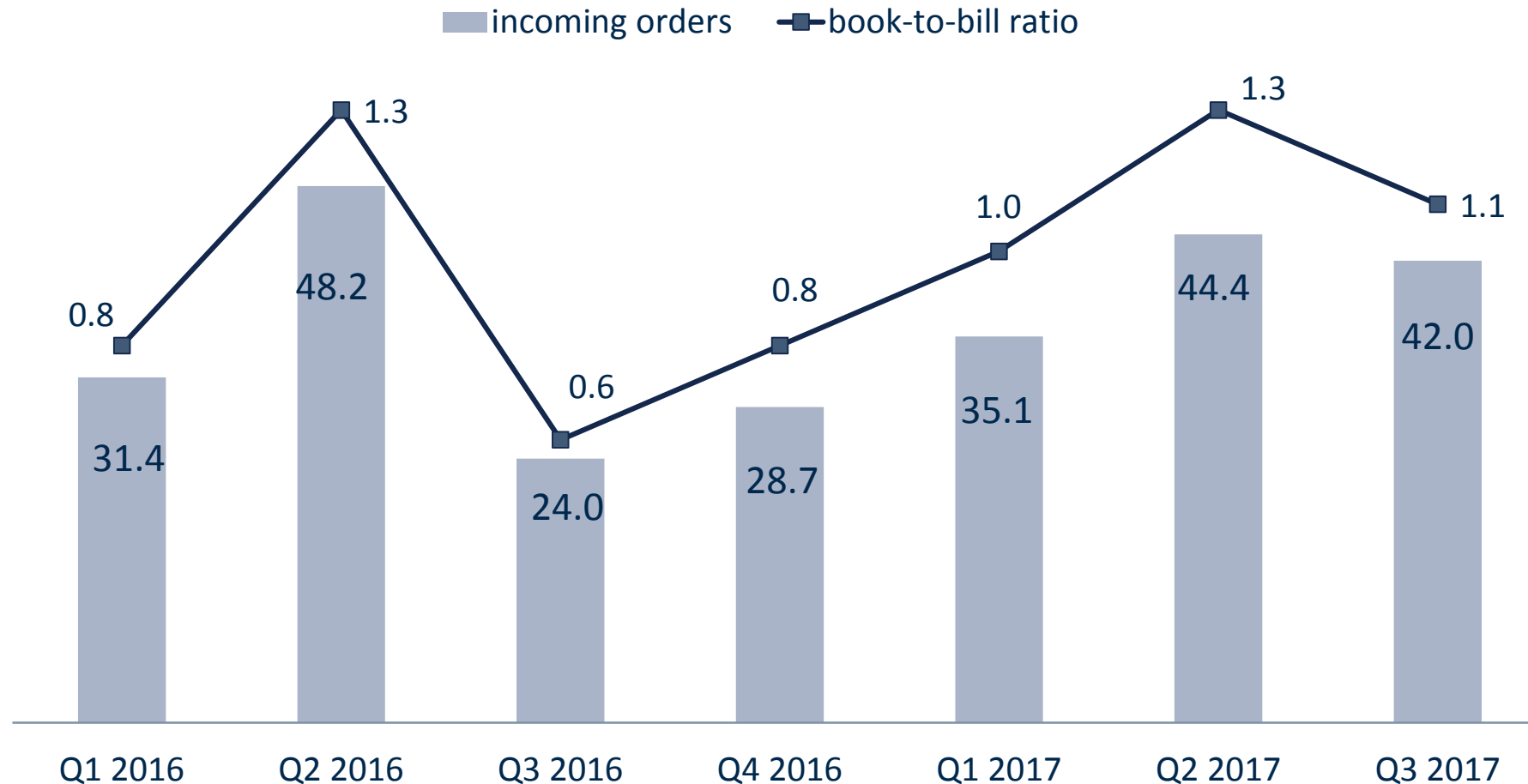
Increase of personnel expense by wage raise and shift to higher qualified staff

Sales per employee after nine month € 138.2 thousand (previous year: € 144.2 thousand)

Q3 INTERIM REPORT 2017

Order intake still on high level at € 42.0 million

in € million



Comments

Order intake in Q3 almost on Q2 level

Total order intake in 2017 is € 121.5 million after € 103.6 million in 2016

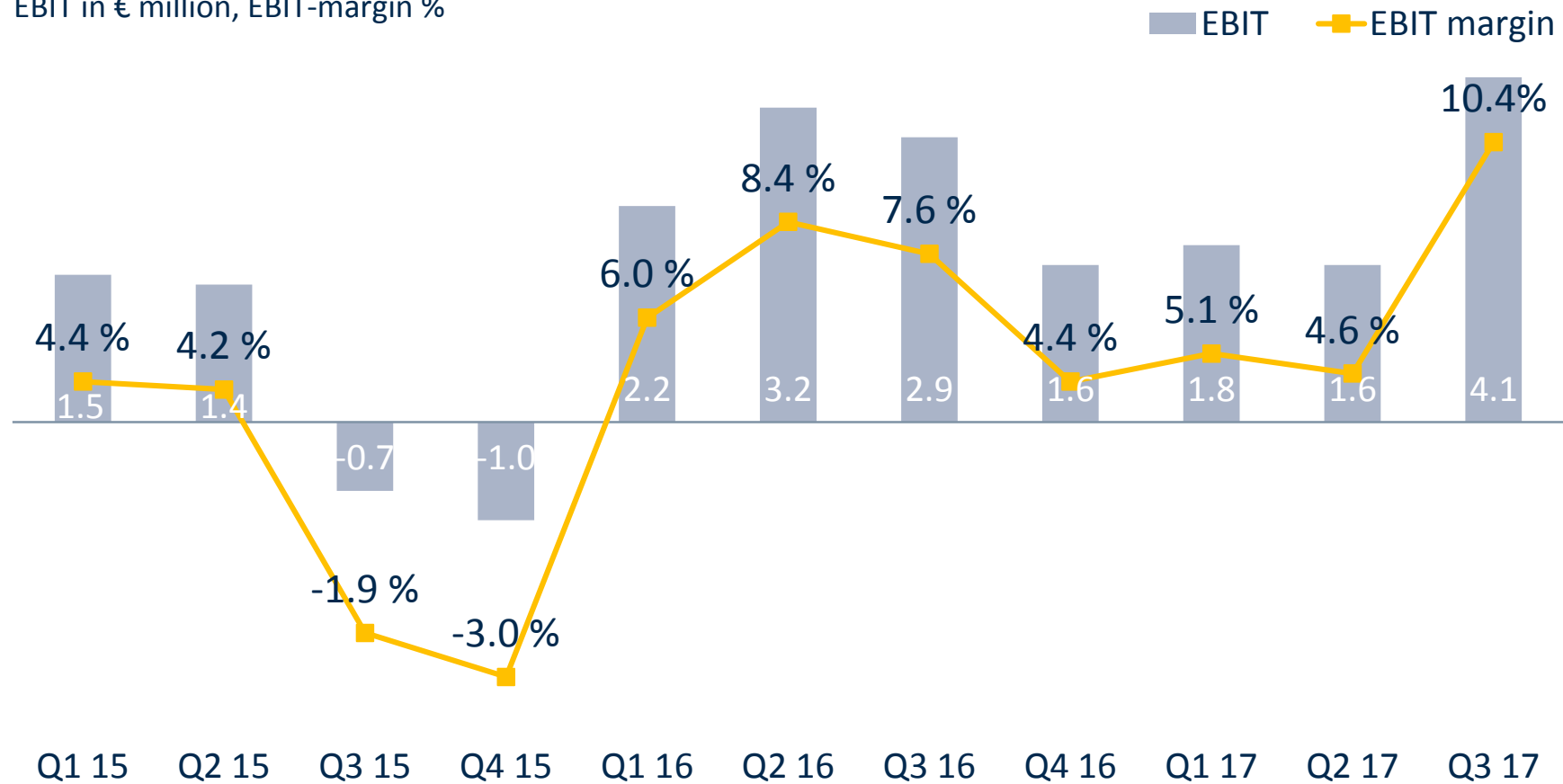
Order backlog at Sept. 30: € 96.5 million

BtB ratio supports further growth

Q3 INTERIM REPORT 2017

EBIT of € 4.1 million in Q3, margin climbs to 10.4 percent

EBIT in € million, EBIT-margin %



Comments

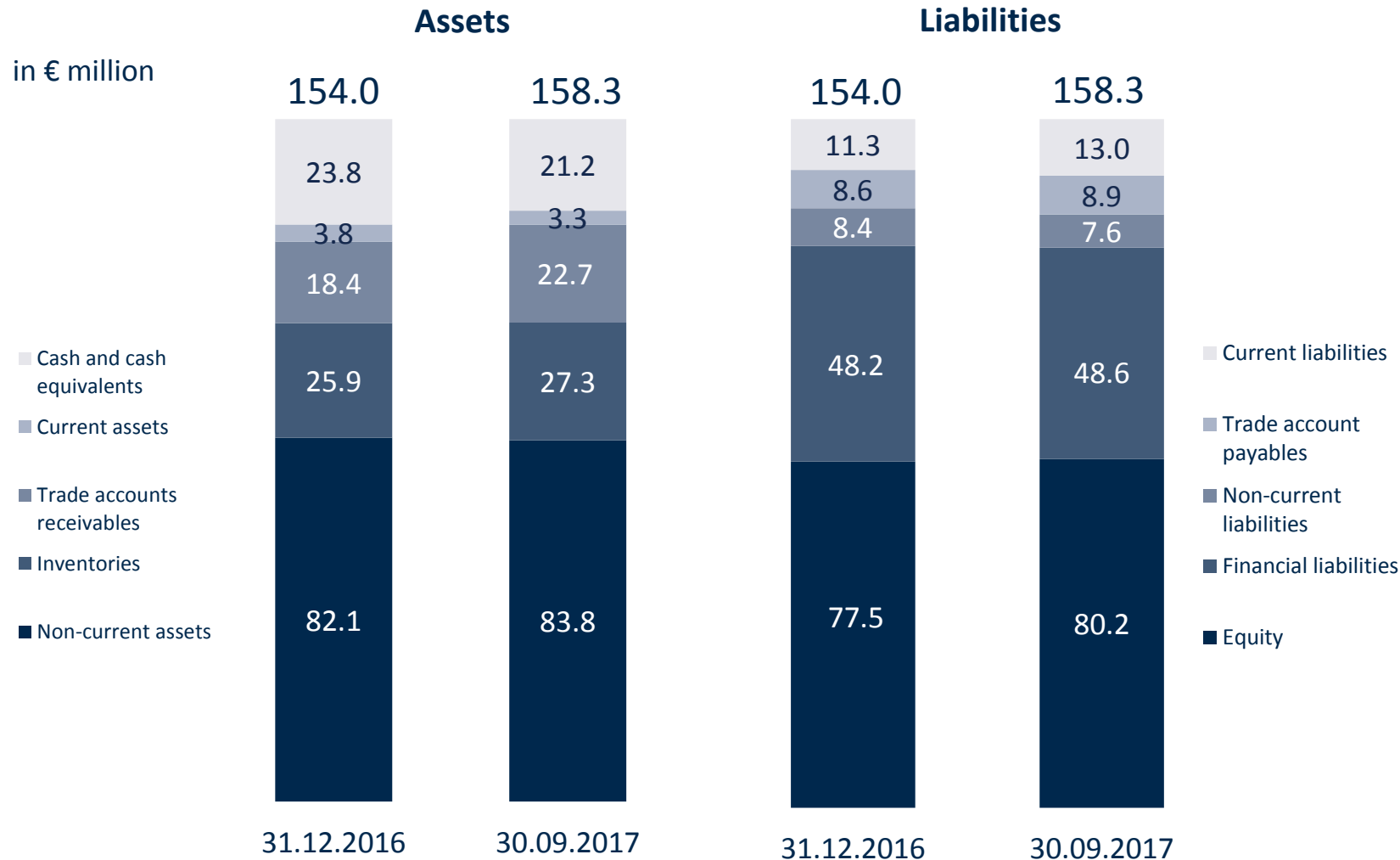
9M margin 6.9 %

Increase in sales with positive effect on profitability

Also contribution by product mix (material cost ratio down to 48.3 percent) and efficiency gains

Q3 INTERIM REPORT 2017

Balance sheet total rises by 2.8 percent from € 154.0 to € 158.3 million



Comments

WC: Inventories and trade receivables + € 5.7 million

Net debt down to € 27.5 million

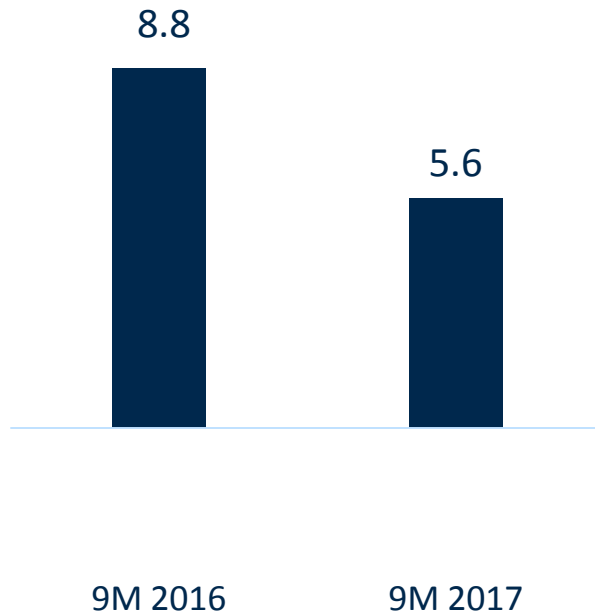
Equity ratio 50.7 %

Q3 INTERIM REPORT 2017

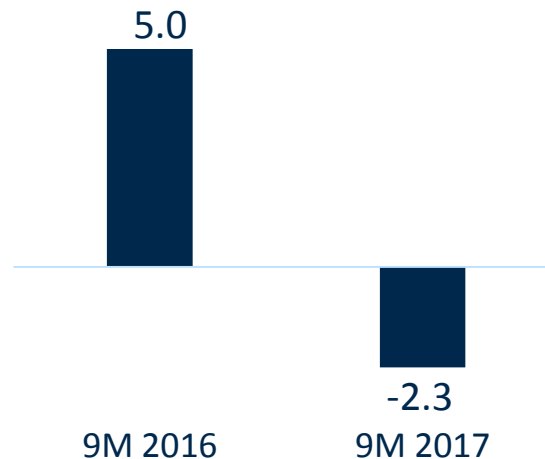
Operating Cashflow burdened by increase in Working Capital and taxes

in € million

Operating Cash Flow



Free Cash Flow



Comments

Changes in WC and taxes burdened CF

Investment volume up to almost € 8 mill after 9M

WE EMPOWER THE FUTURE

Contact

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Mail to: corinna.krause@first-sensor.com