
WE LEAD THE FUTURE

FINANCIAL STATEMENT PRESS CONFERENCE
& CAPITAL MARKET DAY

MARCH 22, 2018



AGENDA (MORNING)

- WELCOME, DR. DIRK ROTHWEILER
- RESULTS 2017, DR. MATHIAS GOLLWITZER
- STRATEGY & OUTLOOK 2018, DR. DIRK ROTHWEILER
- Q&A SESSION
- LUNCH

AGENDA (AFTERNOON)

- FIRST SENSOR'S LIDAR AND CAMERA STRATEGY, MARTIN KÜMMEL
- FIRST SENSOR'S PRESSURE SENSOR FAMILY, DR. MARC SCHILLAGLIES
- INSIGHTS IN OUR PRODUCTION STRATEGY & SITES, DR. MATTHIAS PESCHKE

FINANCIAL STATEMENT 2017

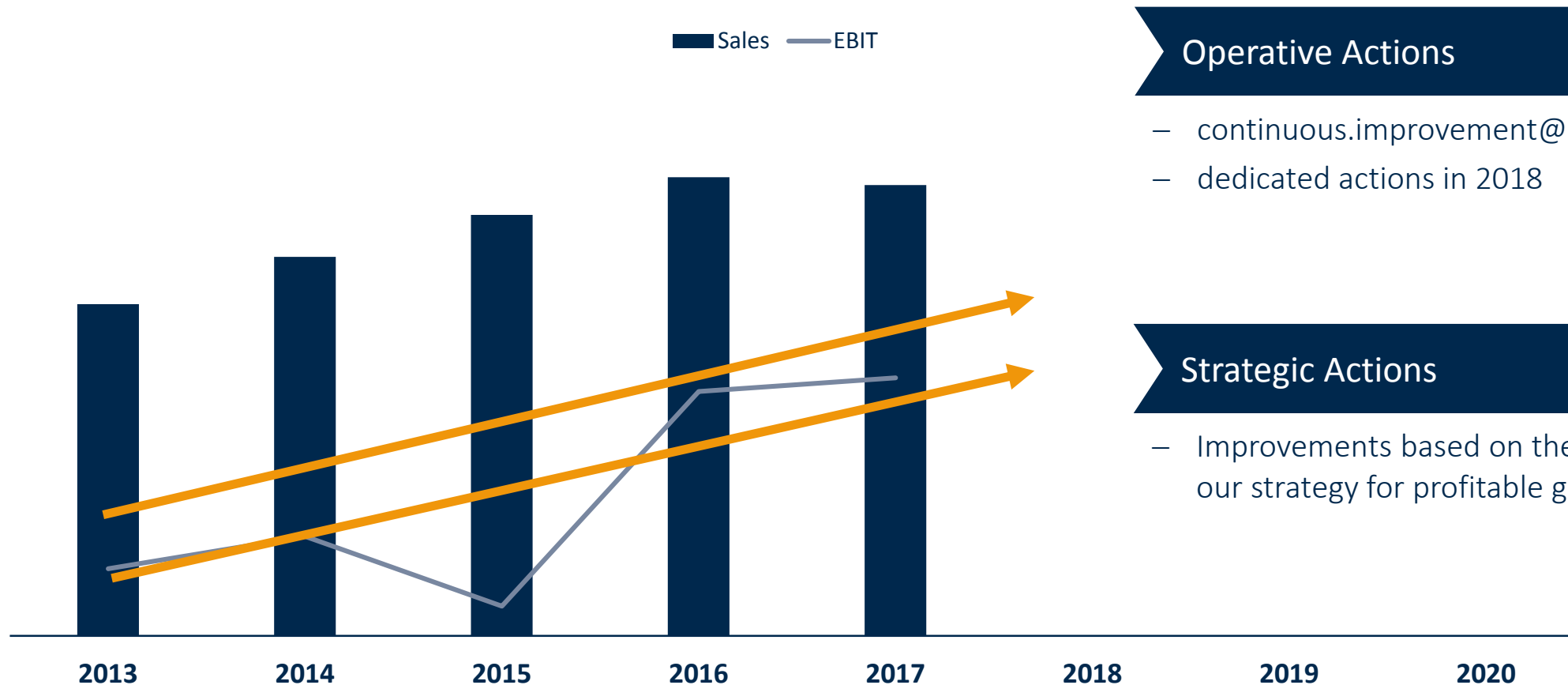
MILESTONE ON OUR WAY TOWARDS
PROFITABLE GROWTH

DR. MATHIAS GOLLWITZER, CFO



FINANCIAL STATEMENT 2017

2017 = Milestone for further sustainable growth and profitability



Operative Actions

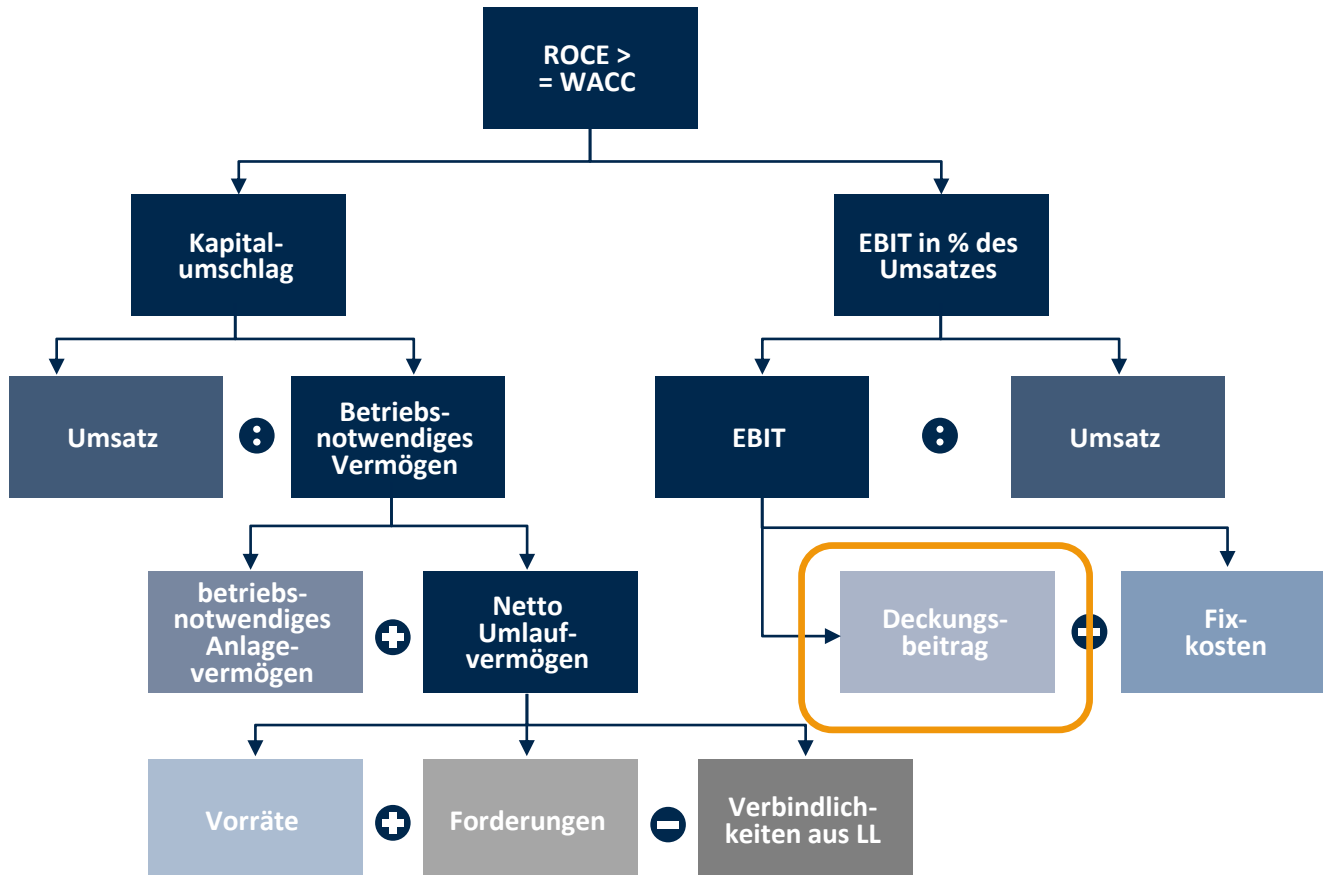
- continuous.improvement@FIS-KPI.system
- dedicated actions in 2018

Strategic Actions

- Improvements based on the five pillars of our strategy for profitable growth

OPERATIVE ACTIONS

FIS KPI's: Interface to non-financial performance indicators



KPI - Umsatz

Sales - Book To Bill
 Sales - Neukundengeschäft
 Sales - Leads / Auftragseingang
 Sales - Lead/Angebote
 Sales - Angebote/Auftragseingang
 Sales - NBO / Angebote
 Sales - NBO conversion rate
 Sales - Umsatz / FTE
 CCD - Innovationskraft
 CCD - Time To Market

KPI - Betriebsnotwendiges AV

CCP - Anlagenverfügbarkeit

KPI - Fixkosten

IT - Beanspruchungsgrad
 IT - Bearbeitungsgrad
 IT - Reaktionszeit
 IT - Betreuungsrate
 IT - Verfügbarkeit
 IT - Kosten/Umsatz
 CCD - Produktivität
 Einkauf - Lieferqualität

KPI - Vorräte

Einkauf - Liefermengentreue
 Einkauf - Liefertermintreue

KPI - Forderungen

Sales - Liefertreue
 Finanzen - DSO

KPI - Verbindlichkeiten aus LL

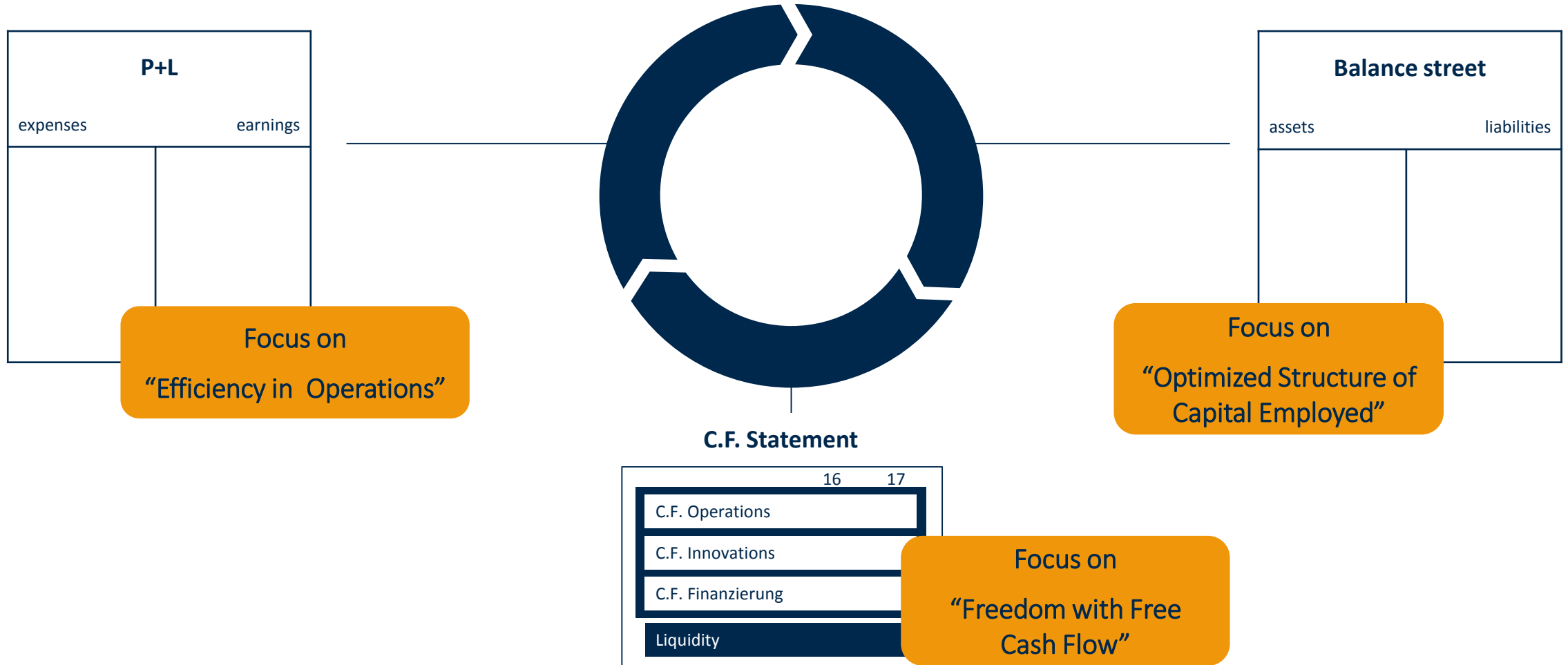
Finanzen - DPO

KPI - Deckungsbeitrag

Ausbeute
 Materialeinsatz
 Fertigungszeit
 Auftragsdurchlaufzeit
 Leistung pro Mitarbeiter
 Beschäftigungsgrad
 Weiterbildungsquote
 Fehlzeitenquote
 Reklamationsquote
 Qualität
 Krankheitsquote
 Ungewollte
 Fluktuationsquote

OPERATIVE ACTIONS

Financial Statements indicate different “Need for actions”



P+L STATEMENT

EBIT improved, one-time effect in financial results reduce net income

In € million	2016	2017
Revenues	150.1	147.5
Other operating income	2.9	3.3
Change in inventory	-1.2	-1.5
Other own work capitalized	1.4	2.5
Cost of material	-72.4	-69.3
Gross profit	80.8	82.5
Personnel expenses	-44.1	-46.6
Other operating expenses	-17.3	-16.3
Operating result (EBITDA)	19.4	19.6
Depreciation and amortization	-7.0	-6.8
Operating result before goodwill amortization (EBITA)	12.4	12.8
Goodwill amortization	-2.4	-2.3
Earnings before interest and tax (EBIT)	10.0	10.6
Financial result	-1.3	-3.4
Income before tax (EBT)	8.7	7.1
Taxes	-2.6	-2.8
Net income	6.1	4.3

P+L STATEMENT

Order backlog and sales funnel improved

in € million

Sales



Order Income



Order Backlog



New Billing Opportunities



Comments

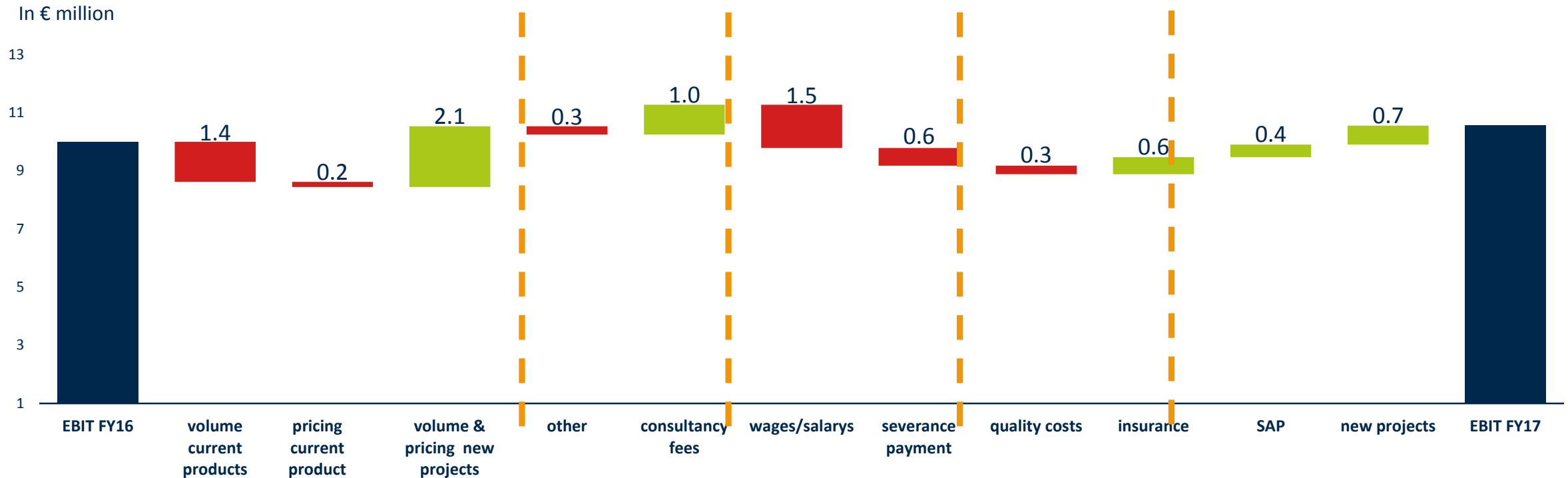
- Industrial target market: Growth of 3.6%
- Medical target market: customer based postponements
- Mobility target market: almost compensated major order of approximately €10 million which expired last

Actions

- Focus on selected New Target Accounts
- Improving Cross-selling on existing Customer Base
- New Product Launches (HTD/L-Serie und Inertial)
- Enlargement of Distribution Product Portfolio

P+L STATEMENT

2017 EBIT impact by pricing, scale effects and personnel costs



Actions

- Insourcing of certain processes in semiconductor production
- Production layout follows product value chain
- Make “and” buy decision in operations
- Further screening of our product-portfolio (“DB 40”)
- Launch of “MEMS” and “OPTO” projects

P+L STATEMENT

Moderate increase in salaries/wages

In € million

Salary/Wages



Comments

- Performance-related components in all types of remuneration
- “Brain drain” especially in Dresden

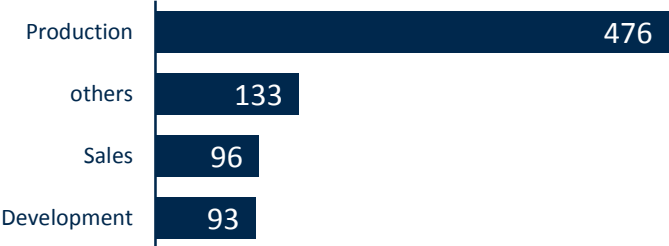
Breakdown 2017



Actions

- Activities for employee retention and recruitment

FTE 2017 YE 798 (PY 804)



Personnel Cost in % Sales

14.1%
8.3%
5.0%
4.2%

P+L STATEMENT

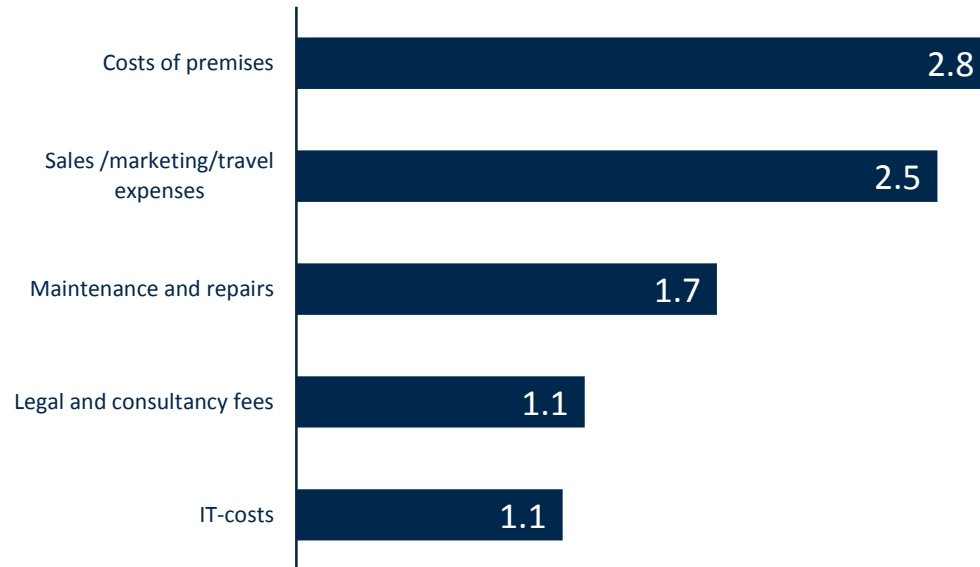
Other expenses slightly reduced

In € million

Other Expenses



Breakdown 2017



Comments

- Decrease in consultancy fees

Actions

- Maintenance: negotiation of service contracts
- IT-Cost: Hosting and maintenance for SAP to be levelled out by IT Savings in other domains

P+L STATEMENT

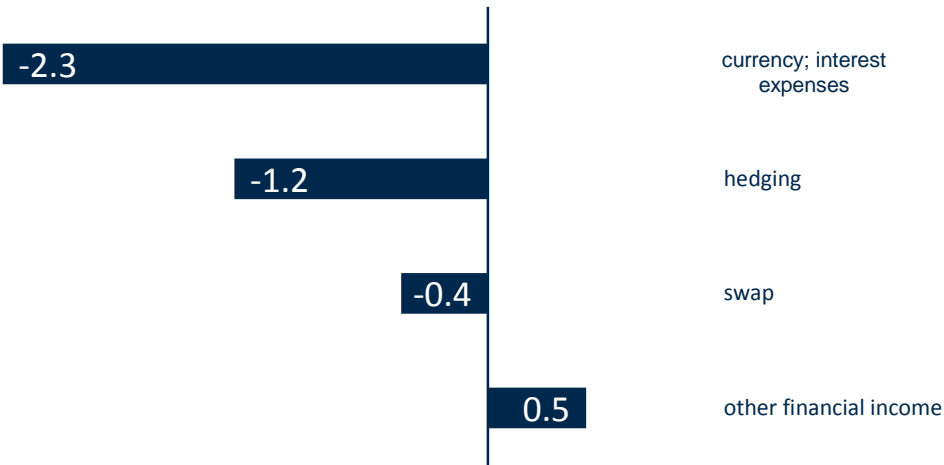
One-time effect due to closing of hedging contracts and swaps

In € million

Financial Result



Breakdown 2017



Comments

Actions

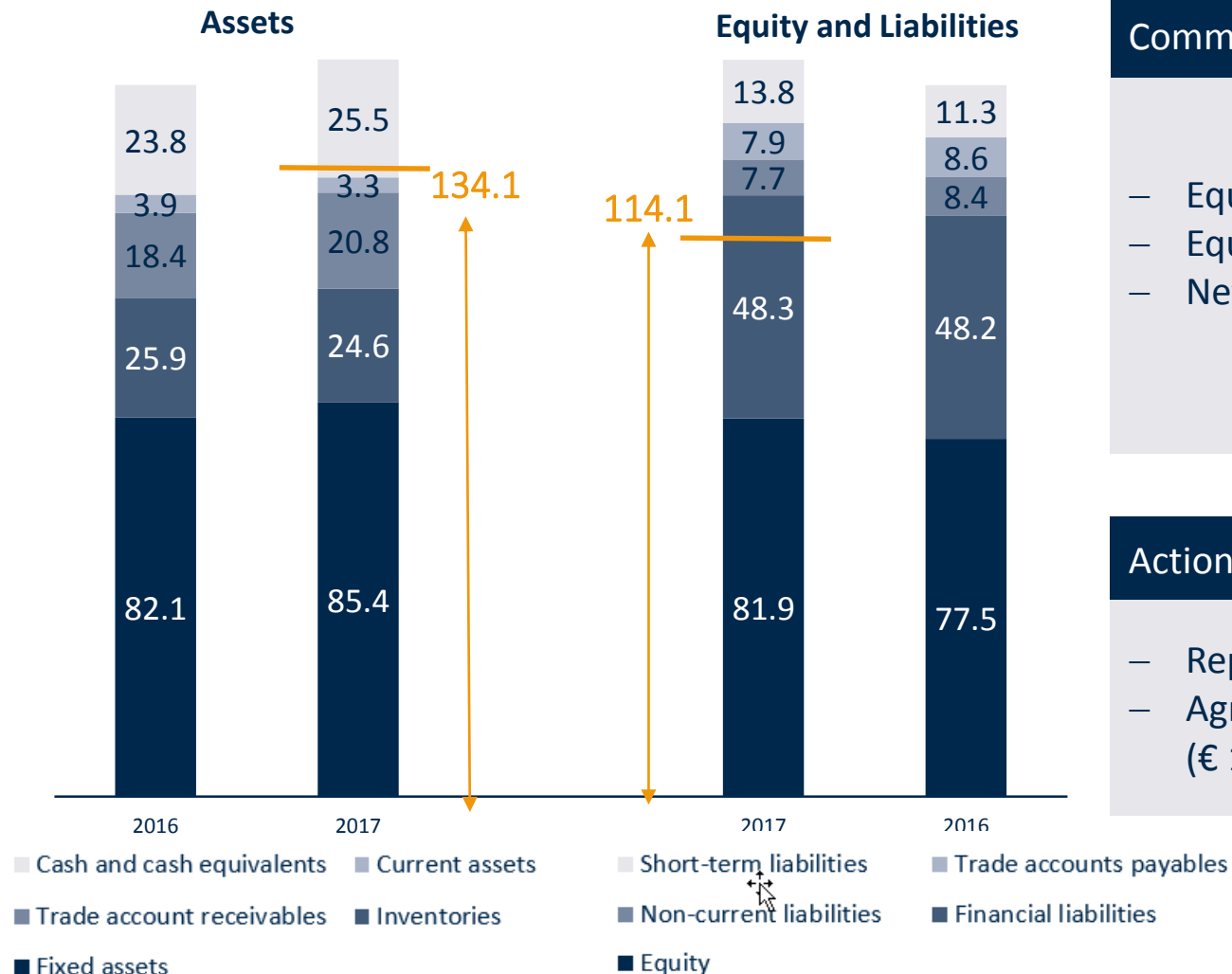
– Natural hedging

BALANCE SHEET

Coverage: Equity and loans > 1 y. / assets* = 85 %

*(w/o cash and cash equivalents)

In € million



Comments

- Equity + Long Term loans (> 1 y) = 114.1 Mio. €
- Equity ratio 2017: 51.3%
- Net working capital Ratio 2017: 25.1% → 90 days

Actions

- Repayment of promissory notes: 12 Mio. € → 12/2018
- Agreement for a long term loan (€ 13 million; → 2027; interest rate 1.15 %)

BALANCE SHEET – INTANGIBLE ASSETS

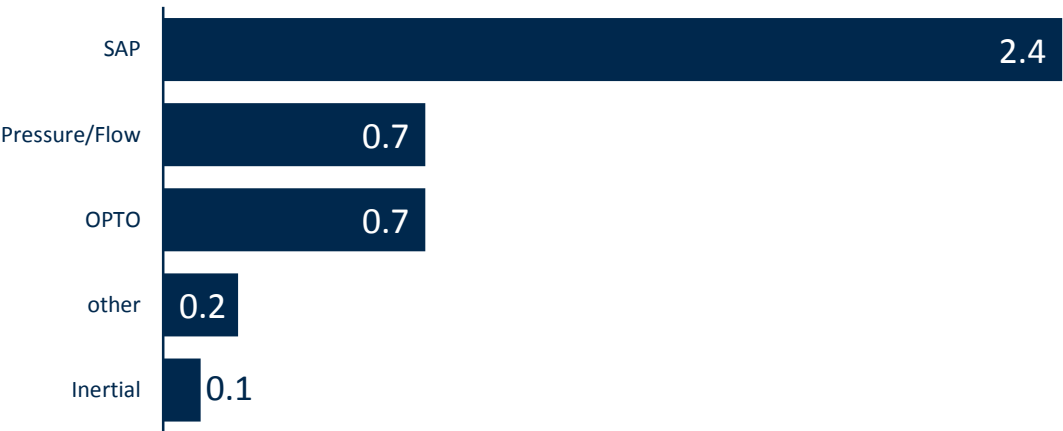
Investment in SAP / conservative booking of strategic projects

In € million

Intangible Assets



Breckdown 2017



Comments

Actions

- Footprint in FLOW and OPTO Projects
- Project Controlling: Stage Gate Process

BALANCE SHEET

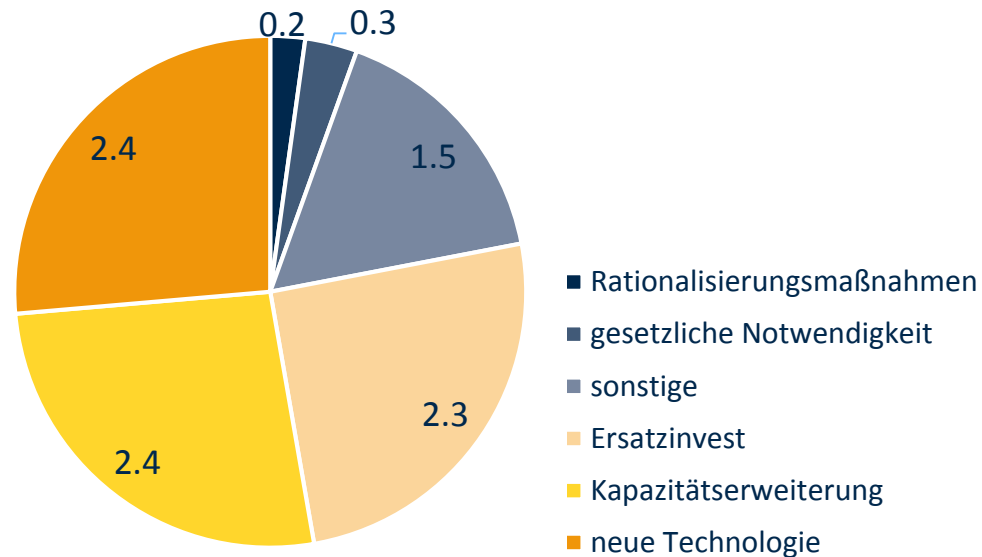
Investments: 7.1 million for new technologies & production capacity

In € million

Equipment



Bookings 2017



Comments

Workload 2017 based on “planned capacity”:

- OPTO: 49%
- MEMS: 97%
- AVT: 80 %

Actions

Investments 2018: € 8- 10 million:

- Insourcing
- 6 Inch
- Automatisierung

BALANCE SHEET

Net working capital ratio 2017: 25.1% / 90 days

In € million

Inventory

	Raw Material	Unfinished Goods	Finished Goods
2017	11.2	6.3	7.1
2016	10.7	6.5	8.7

-4.8% DIH -9↑

Receivables

2017	20.8
2016	18.4

+13.0% DSO +1↓

Liabilities Supplier

2017	7.9
2016	8.6

-8.4% DPO 0↓

Comments

Current assets:

- Inventory: Shut down production -> SAP
- Receivables: Overdue > 30 days: 11.8%

Actions

→ KVP-Targets

CASHFLOW STATEMENT

Free cashflow amounts to € 3.5 million

	2016	2017
CF Operations	16.6	16.0
CF Investments	-6.5	-12.5
Free CF	10.0	3.5
CF Financing	-7.8	-1.7
Total CF	2.3	1.8
Cash	23.8	25.5

Comments

- Open credit line: €11.1 million
- Currently no factoring
- Covenants:

EBITDA/Net Debt:	1.16	➔ cap 3.5
EBITDA/Interest:	11.04	➔ cap 4.25

Actions

SUMMARY

Priorities 2018ff

Top Initiatives

- ▶ Insourcing and 6 inch
- ▶ Product portfolio / DB 40
- ▶ Further improvements by lead time and on-time delivery

STRATEGIC PERSPECTIVE FOR PROFITABLE GROWTH

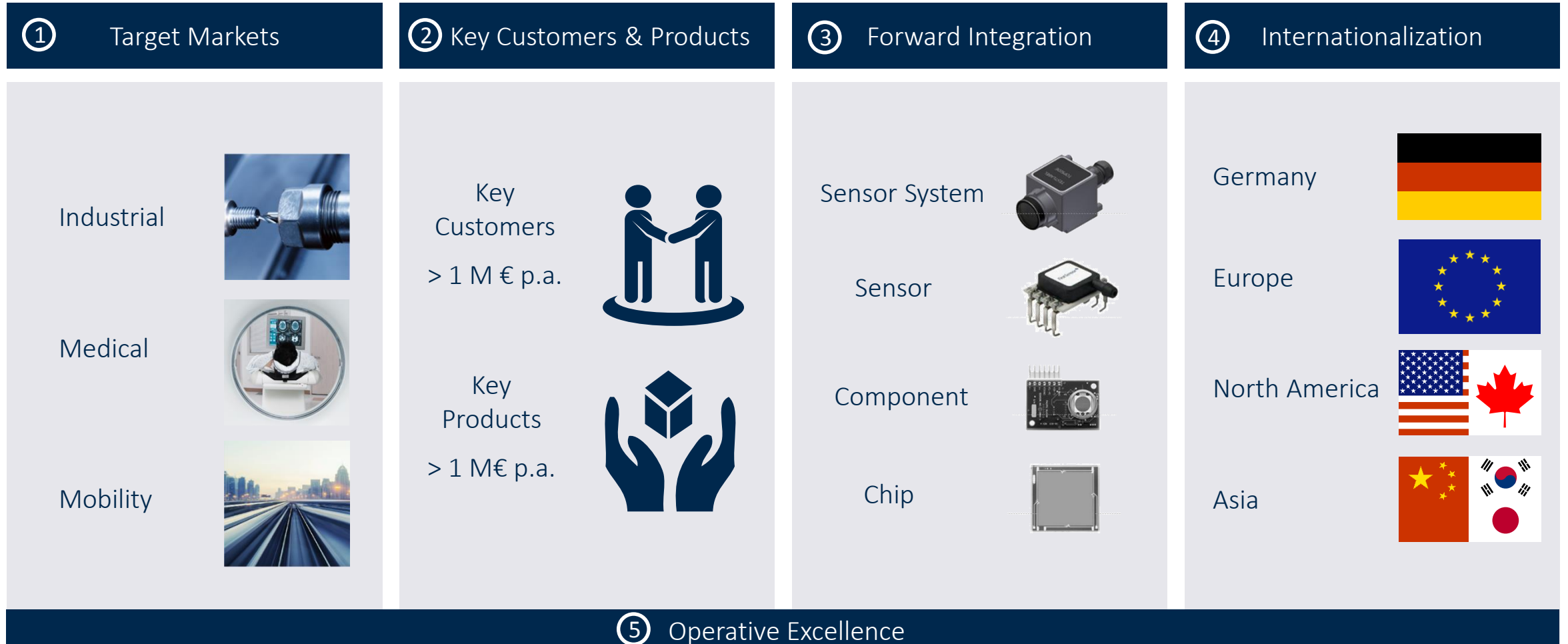
RESULTS 2017 & OUTLOOK 2018

DR. DIRK ROTHWEILER, CEO



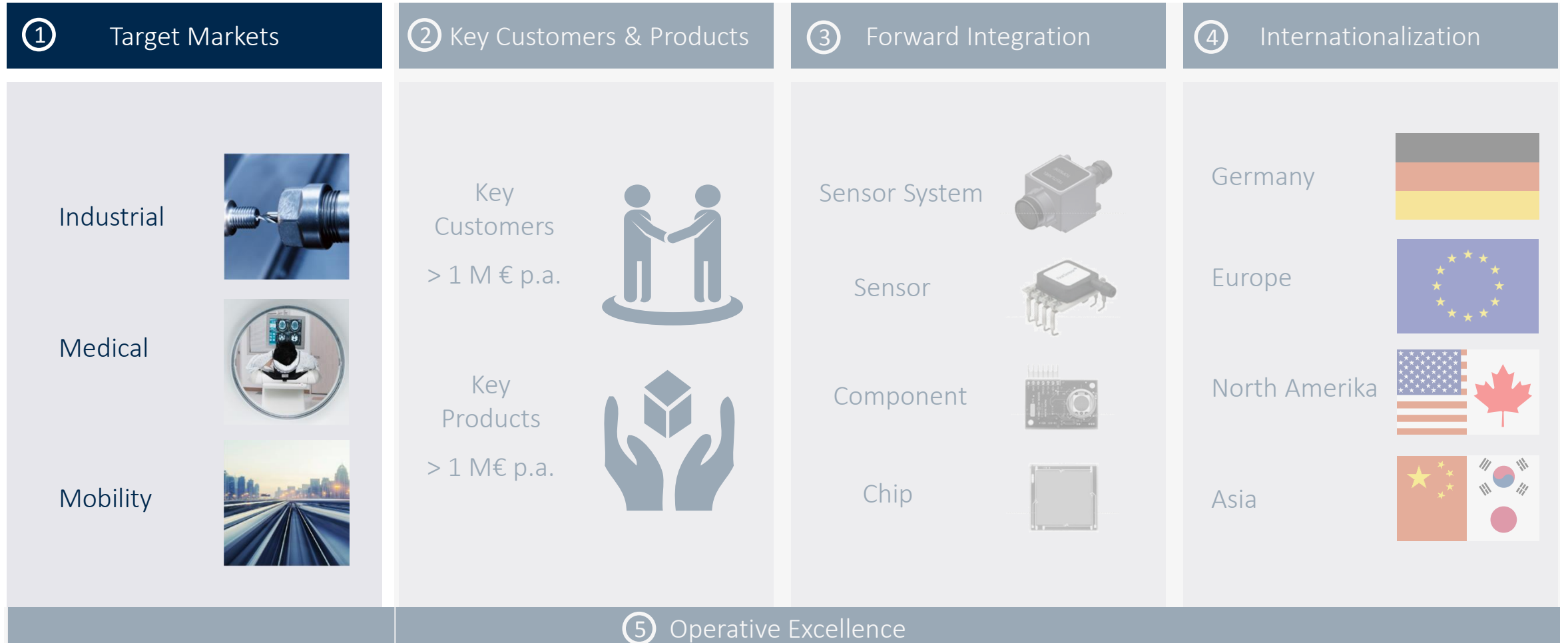
STRATEGIC PERSPECTIVE FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions



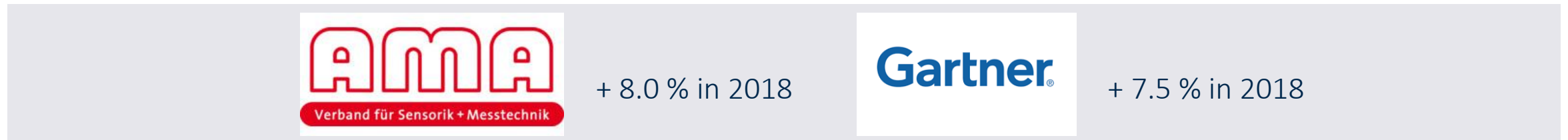
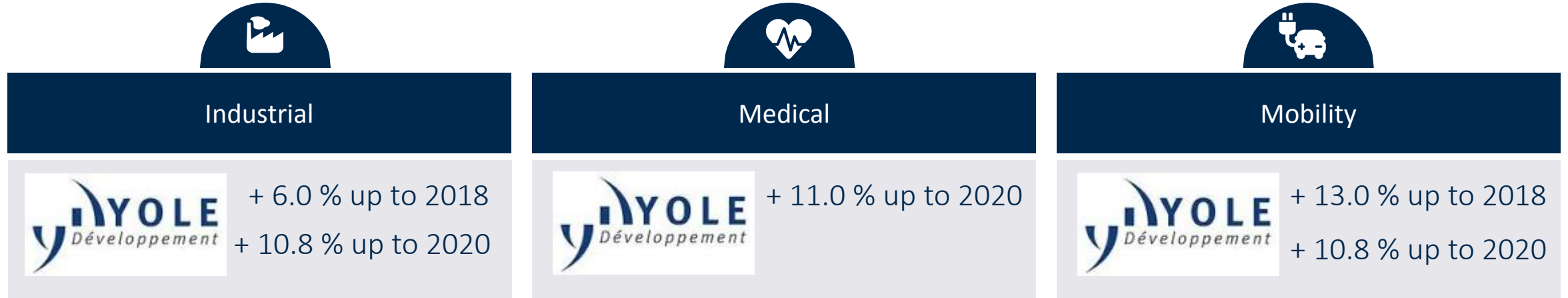
STRATEGIC PERSPECTIVE FOR PROFITABLE GROWTH

Dimension 1: Clear focus on our target markets



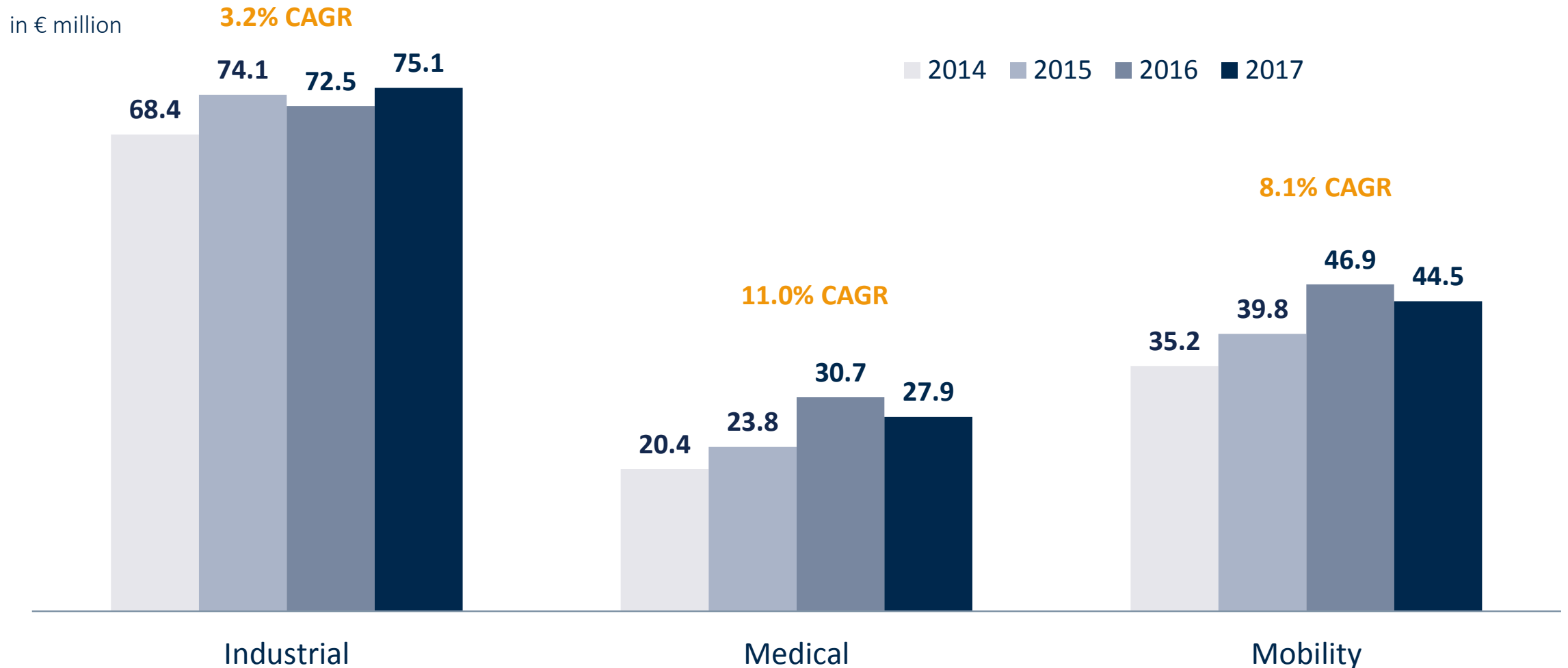
DIMENSION 1: CLEAR FOCUS ON OUR TARGET MARKETS

Our target markets are growth markets



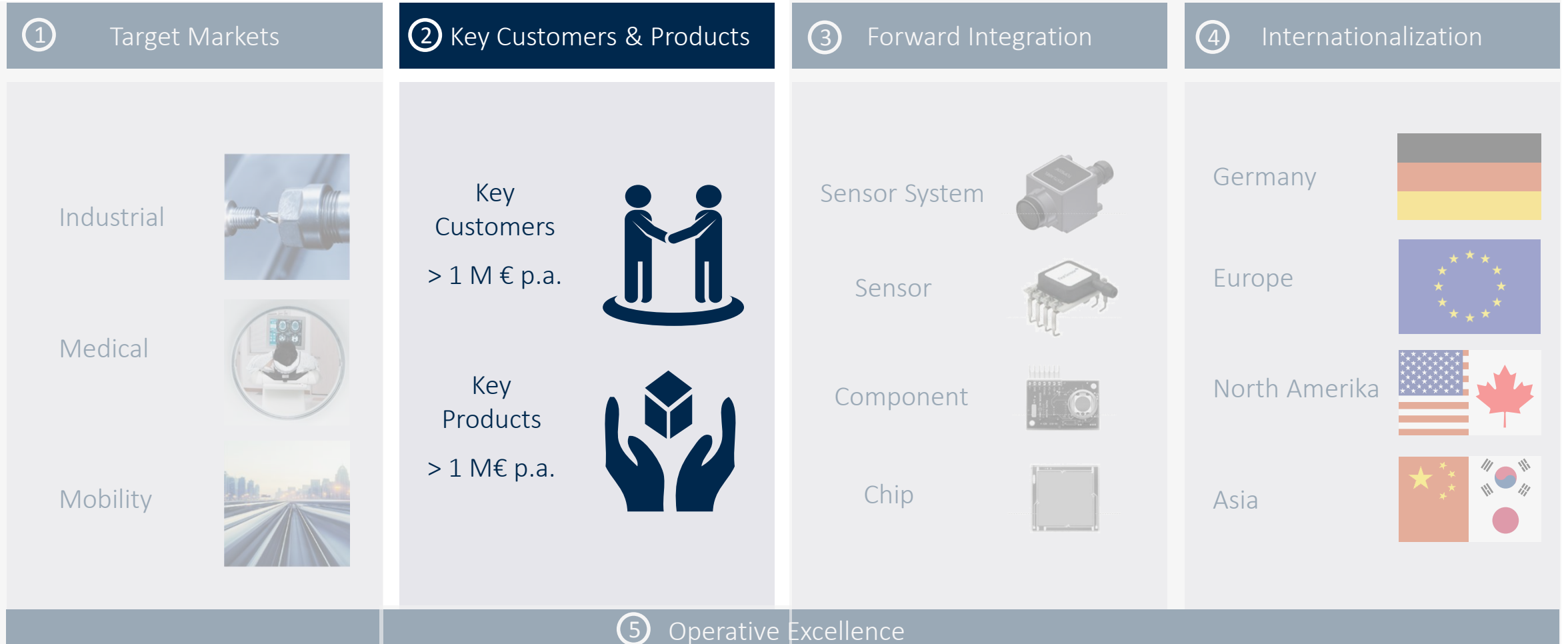
DIMENSION 1: CLEAR FOCUS ON OUR TARGET MARKETS

We participate in market growth



PERSPECTIVE FOR PROFITABLE GROWTH

Dimension 2: Clear focus on key customers & key products



DIMENSION 2: CLEAR FOCUS ON KEY CUSTOMERS & PRODUCTS

Why is this efficient?

Key Customers

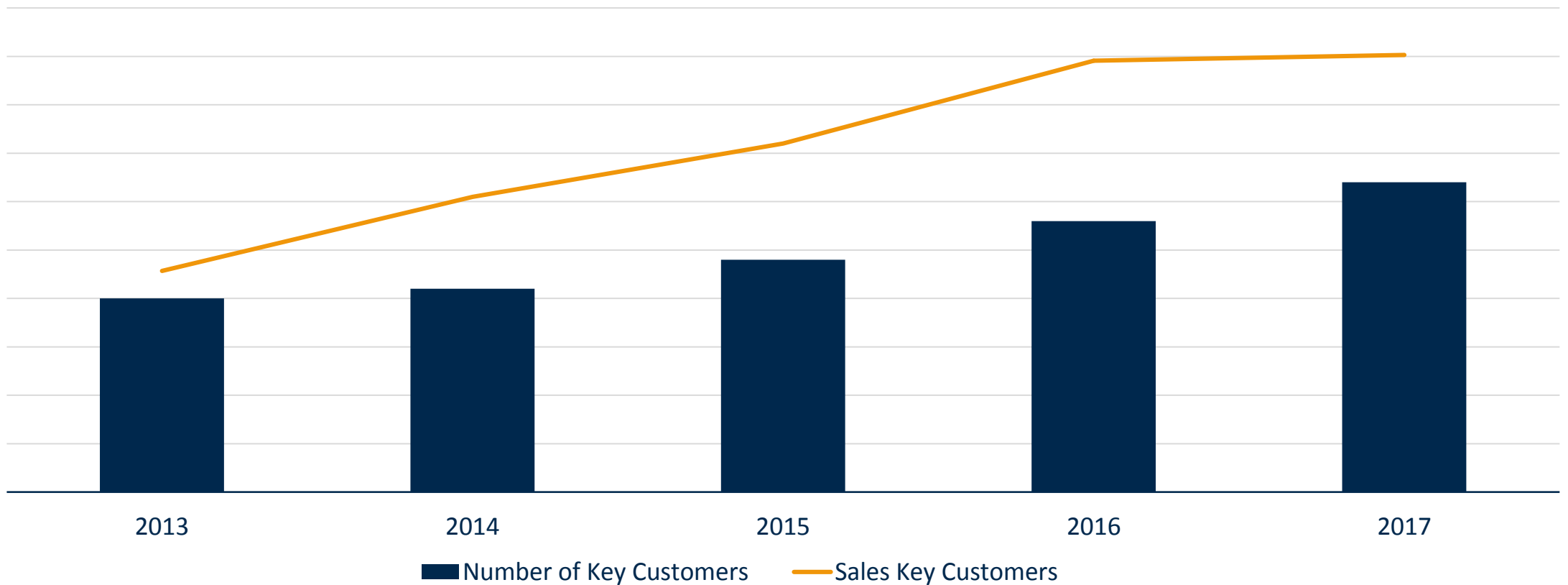
Key Products

- ▶ 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.

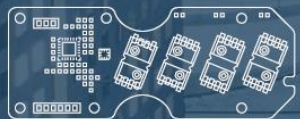
Our growth becomes more scalable and our profitability increases.

DIMENSION 2: CLEAR FOCUS ON KEY CUSTOMERS

In 2017, we increased number of and sales with key customers



Thinking Joined-Up Together



LMI Multi-Sensor System

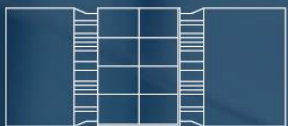
On a tailored printed circuit board, this solution combines electronic components with four of our LMI differential pressure sensors that can detect the smallest differences in pressure.



Giving Perspectives Together

Assembly of Arrays

When building large detector arrays, we mount sensor chips on a backing using state-of-the-art flip chip technology to achieve the best possible fitting accuracy with this solution.



Going into Series Production Together

EPC 1089

ST 420 L
ZONE 6

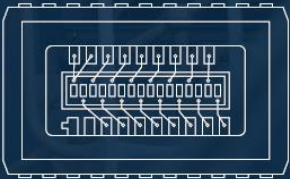
ST 420 R

Sender Fit

ST410L
TAILGATE
HANDLER

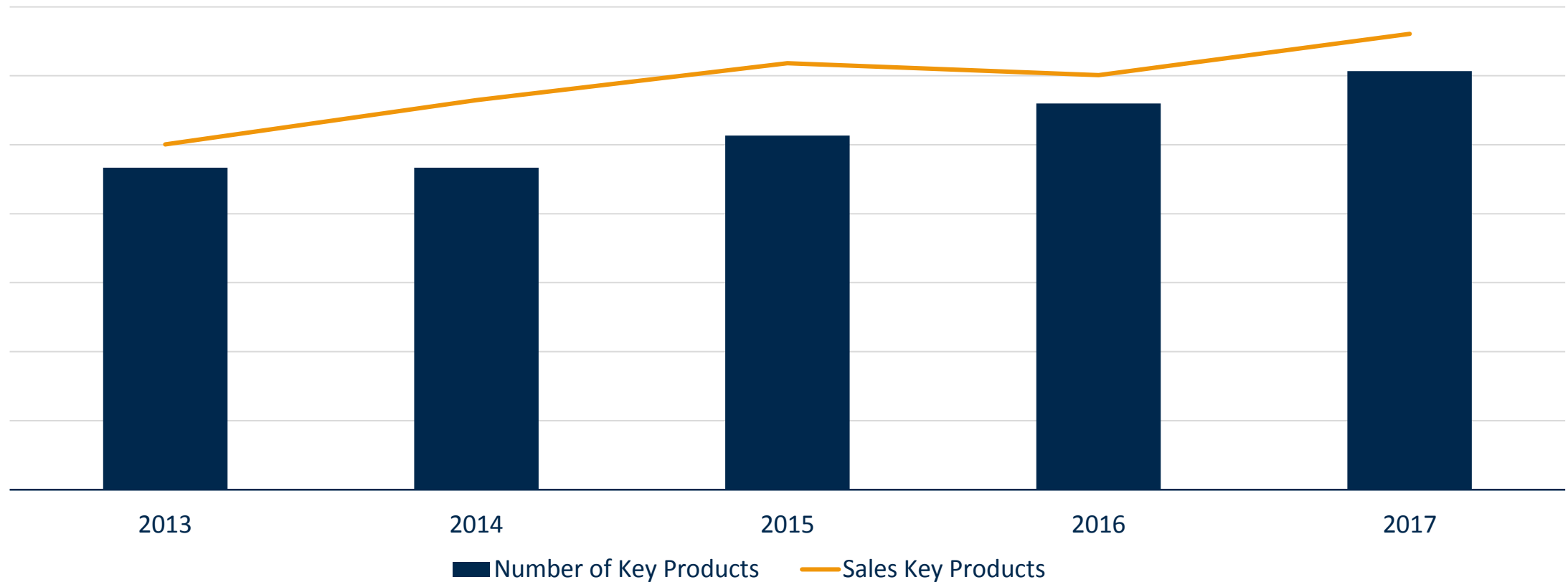
Avalanche Photodiodes

Our high-performance diodes measure light pulses in the nanosecond range. As one of the leading manufacturers, First Sensor also develops and produces array solutions for LiDAR systems.

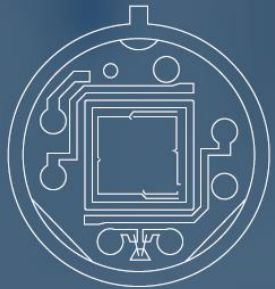


DIMENSION 2: CLEAR FOCUS ON KEY PRODUCTS

In 2017, we increased number of and sales with key products, too



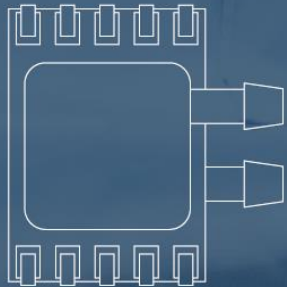
Staying One Step Ahead Together



STARE K Series

Our standard piezo-resistive components are used in industry and medical technology. Pressure sensor chips based on STARE technology ensure their long-term stability and precision.

Irreplaceable Together



H Series

Our standard piezo-resistive pressure sensors measure extremely low pressures in dry, non-corrosive gases. Their applications include fields such as medical technology, measurement technology and air conditioning technology.

Responsibility Together

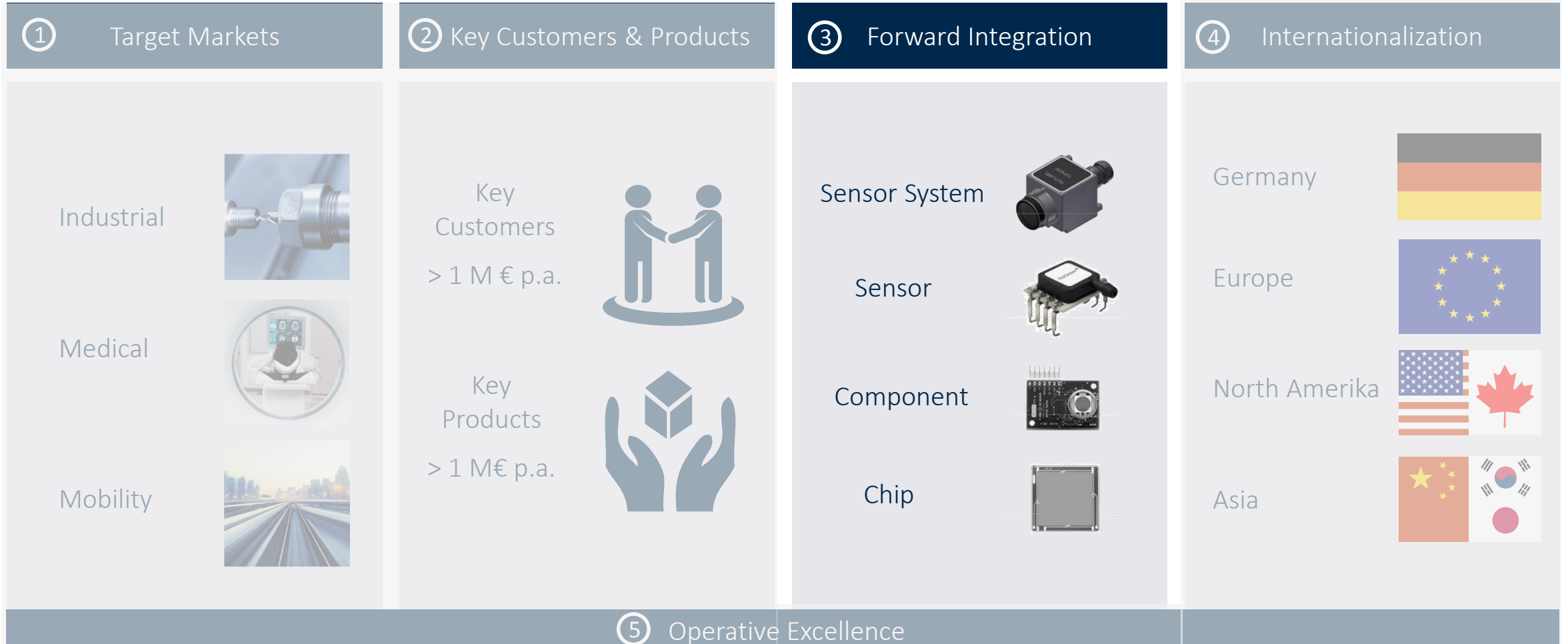


sensEdge Pressure Sensors

High-pressure sensors based on sensEdge technology are suitable for pressure changes up to 3,000 bar. Our solutions are used in steer-by-wire systems, for example.

PERSPECTIVE FOR PROFITABLE GROWTH

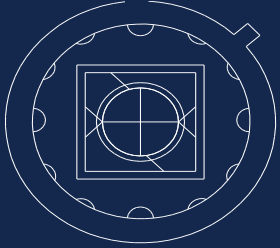
Dimension 3: Clear focus on forward integration



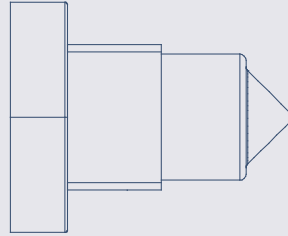
DIMENSION 3: CLEAR FOCUS ON FORWARD INTEGRATION

We base our forward integration initiatives on clear product roadmaps

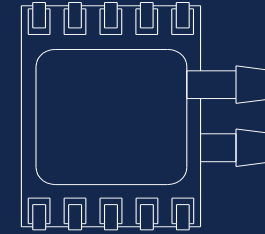
Light



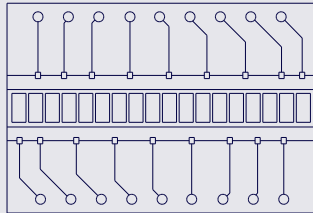
Level



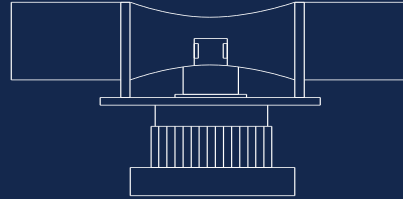
Pressure



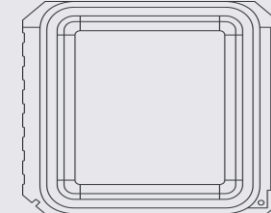
Radiation



Flow



Acceleration



Integrated Manufacturing Service

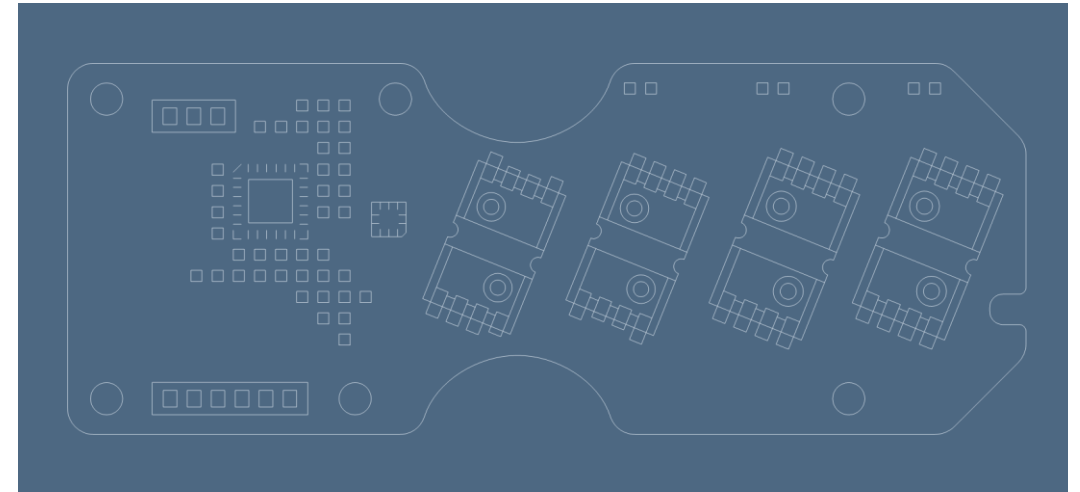
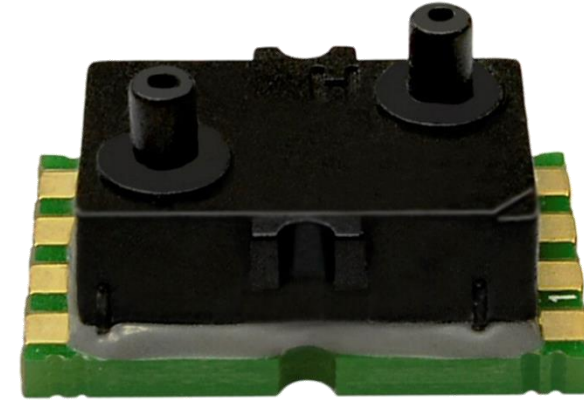


Multi Sensor Systems



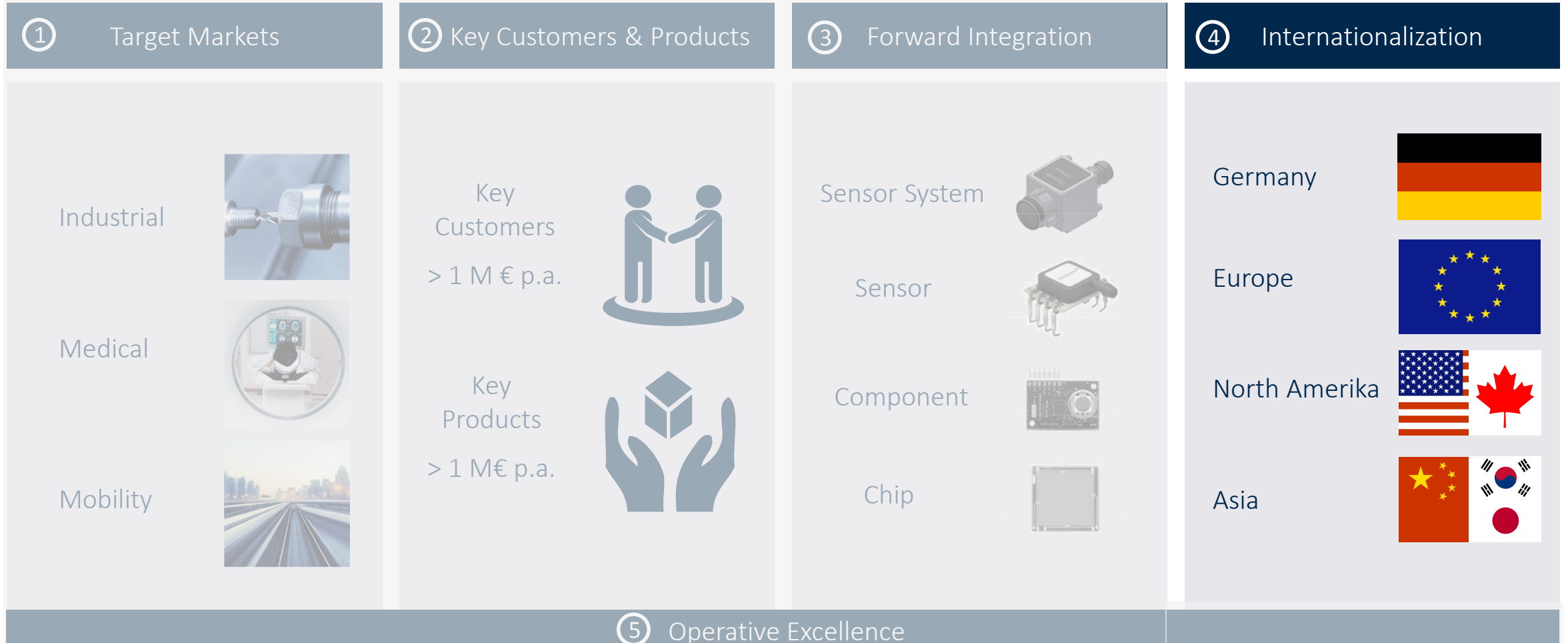
FORWARD INTEGRATION

One example is a multi sensor system for HVAC applications



PERSPECTIVE FOR PROFITABLE GROWTH

Dimension 4: Clear focus on internationalization

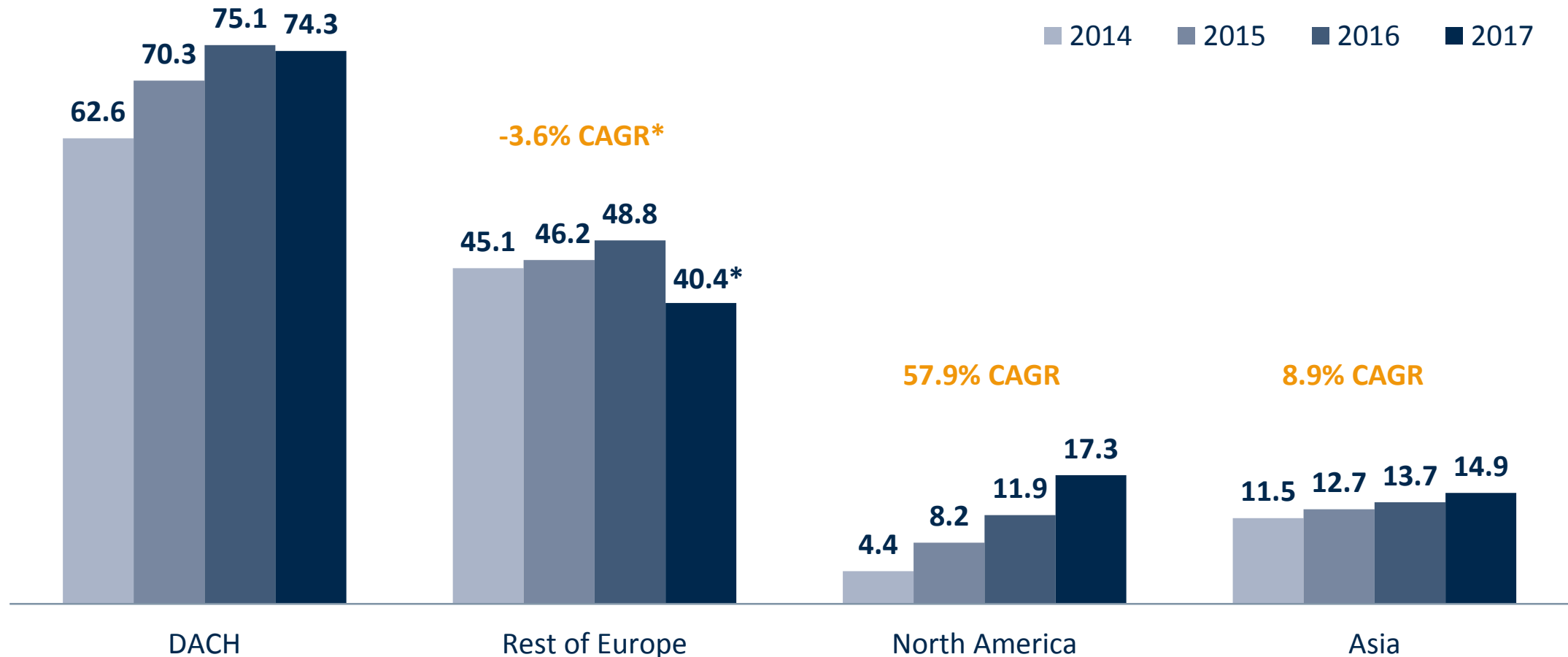


DIMENSION 4: CLEAR FOCUS ON INTERNATIONALIZATION

We generated further growth in our key sales regions

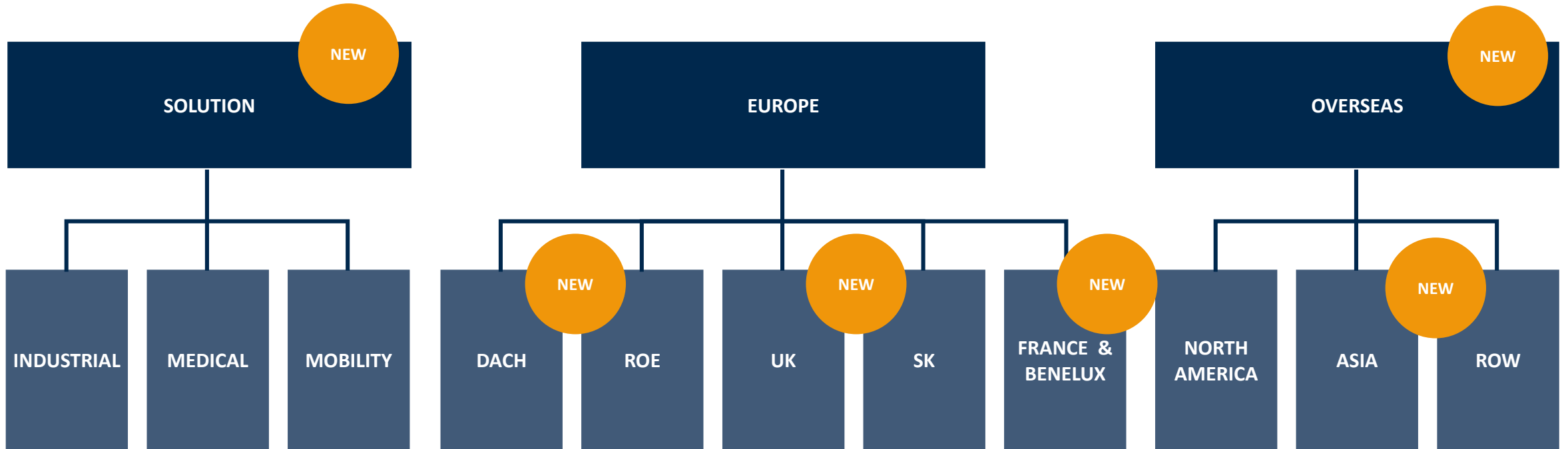
in € million

* expired mobility order



DIMENSION 4: CLEAR FOCUS ON INTERNATIONALIZATION

We have set up our sales force for accelerating growth



PERSPECTIVE FOR PROFITABLE GROWTH

The Fundament: focus on operative excellence



THE FUNDAMENT: FOCUS ON OPERATIVE EXCELLENCE

Our current core initiatives

Top Initiatives		
▶ T's & C's Harmonization	✓	
▶ Harmonized Core Processes	✓	
▶ OneERP	✓	progressing
▶ Lead Time, On-Time Delivery, Quality	✓	continuous
▶ Portfolio Optimization		ongoing
▶ Portfolio Consolidation		ongoing

THE FUNDAMENT: FOCUS ON OPERATIVE EXCELLENCE

Continued focus on portfolio optimization and consolidation

Top Initiatives		
▶ T's & C's Harmonization	✓	
▶ Core Processes	✓	
▶ OneERP	✓	progressing
▶ Lead Time, On-Time Delivery, Quality	✓	continuous
▼ Portfolio Optimization	ongoing	
1. Margin structure analysed	✓	
2. Cost reduction potential identified and improvement projects startet	✓	
3. Continued project execution	2018 / 2019	
▶ Portfolio Consolidation	2018 / 2019	

THE FUNDAMENT: FOCUS ON OPERATIVE EXCELLENCE

Portfolio consolidation: Casestudy for one selected product family

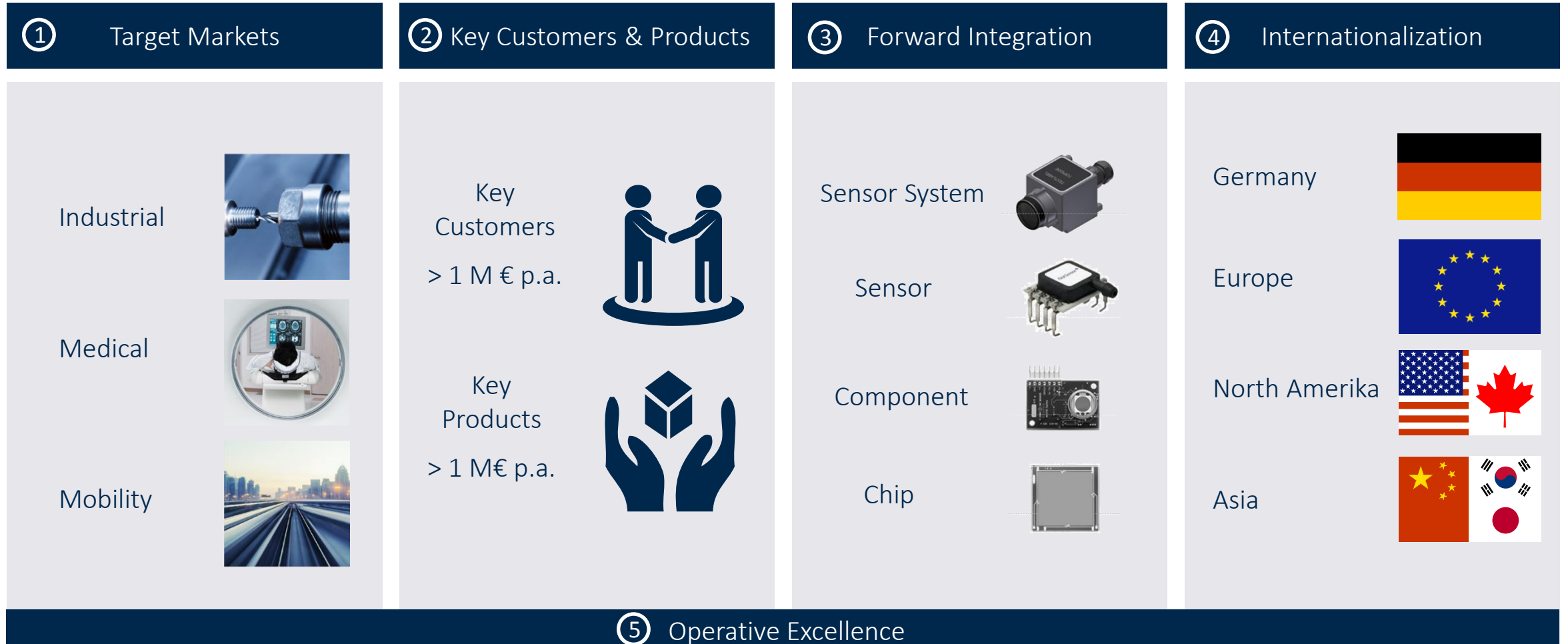
		PRODUCTS		
		A products	B products	C products
CUSTOMERS	A customers	11 % products	8 %	5 %
		69 % customers	6 %	> 1 %
	B customers	6 %	12 %	17 %
		12 %	9 %	1 %
	C customers	> 1 %	3 %	38 %
		> 1 %	> 1 %	2 %

Top Measures

- ▶ Threshold order quantities for new products
- ▶ Minimum order quantities for existing products
- ▶ Bundling of demand
- ▶ Recommendation of product alternatives
- ▶ Last call options if necessary

PERSPECTIVE FOR PROFITABLE GROWTH

We generate and utilize economies of scale in 4 dimensions



OUR GUIDANCE 2018

Improving our profitability remains our focus

SALES REVENUES

150 - 160

MILLION EURO

EBIT MARGIN

7 - 9

PERCENT

OUR GUIDANCE 2018

Expected sales level of €150 million to €160 million

Opportunities

- Good order backlog
- Ramp up of customer-specific solutions projects
- Increased demand for standard products

Risks

- Late order placement may result in 2019 shipments
- Customer demand may vary
- Product launches of customers may delay
- Risks associated with our One ERP project

OUR GUIDANCE 2018

Expected EBIT margin level of 7 to 9 percent

Opportunities

- Economies of scale: focus on key products and key customers
- Forward integration: higher level of value add
- Operative Excellence: continuous improvement

Risks

- Higher marketing expenses for the introduction of new technologies and products, e.g. inertial sensors, senseEdge
- Effects such as fluctuations in purchase prices, risks in process stability, increases in wages and salaries
- Risks associated with our One ERP project

STRATEGY FOR PROFITABLE GROWTH

OUR ASPIRATION

As a leading international sensor manufacturer,
we will achieve 10% average growth and a 10% EBIT margin
with tailor-made customer-specific sensor solutions
and innovative platform-based standard products,
thereby creating added value for our customers, investors and employees.
Our corporate values of innovation, excellence and proximity
form the compass for our actions.

Q&A SESSION

AGENDA (AFTERNOON)

- FIRST SENSOR'S LIDAR AND CAMERA STRATEGY, MARTIN KÜMMEL
- FIRST SENSOR'S PRESSURE SENSOR FAMILY, DR. MARC SCHILLAGLIES
- INSIGHTS IN OUR PRODUCTION STRATEGY & SITES, DR. MATTHIAS PESCHKE

FROM SENSOR INTEGRATION TO SENSOR FUSION

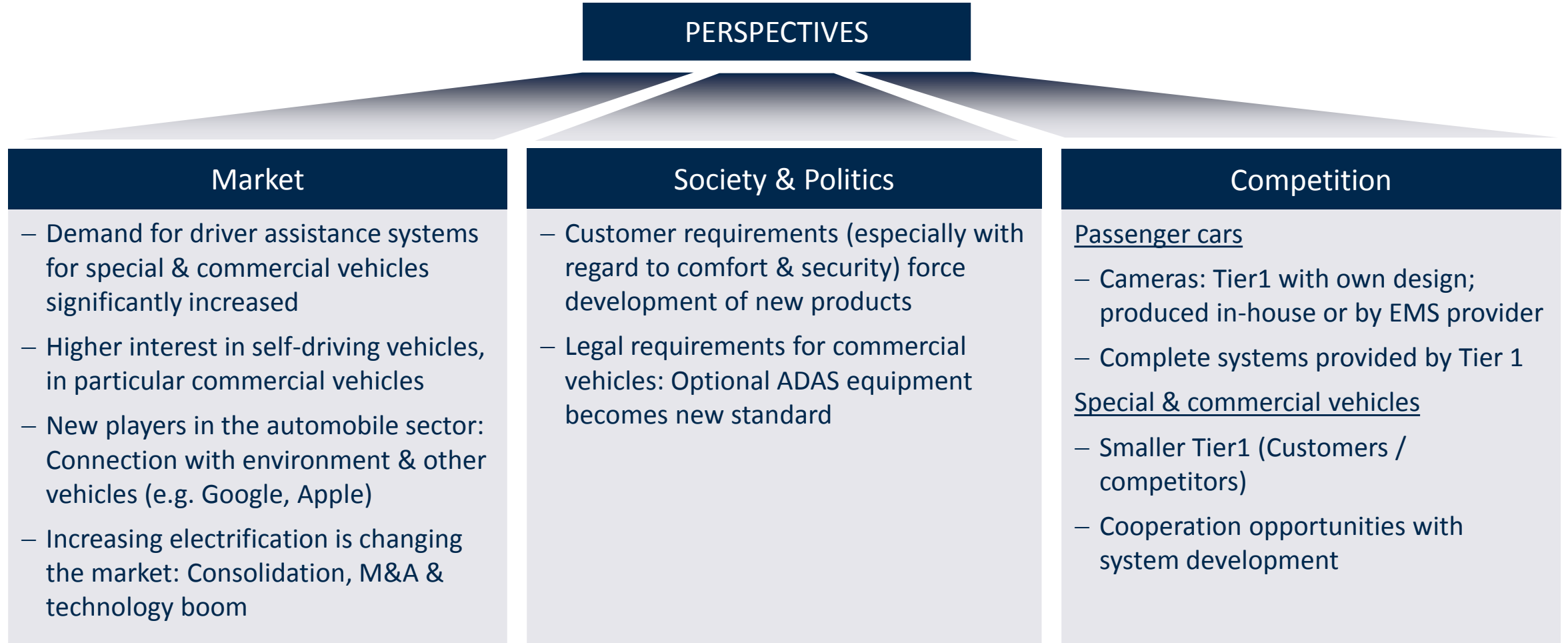
FIRST SENSOR'S LIDAR AND CAMERA
STRATEGY FOR DRIVER ASSISTANCE &
AUTONOMOUS DRIVING

MARTIN KÜMMEL, PRODUCT MANAGER



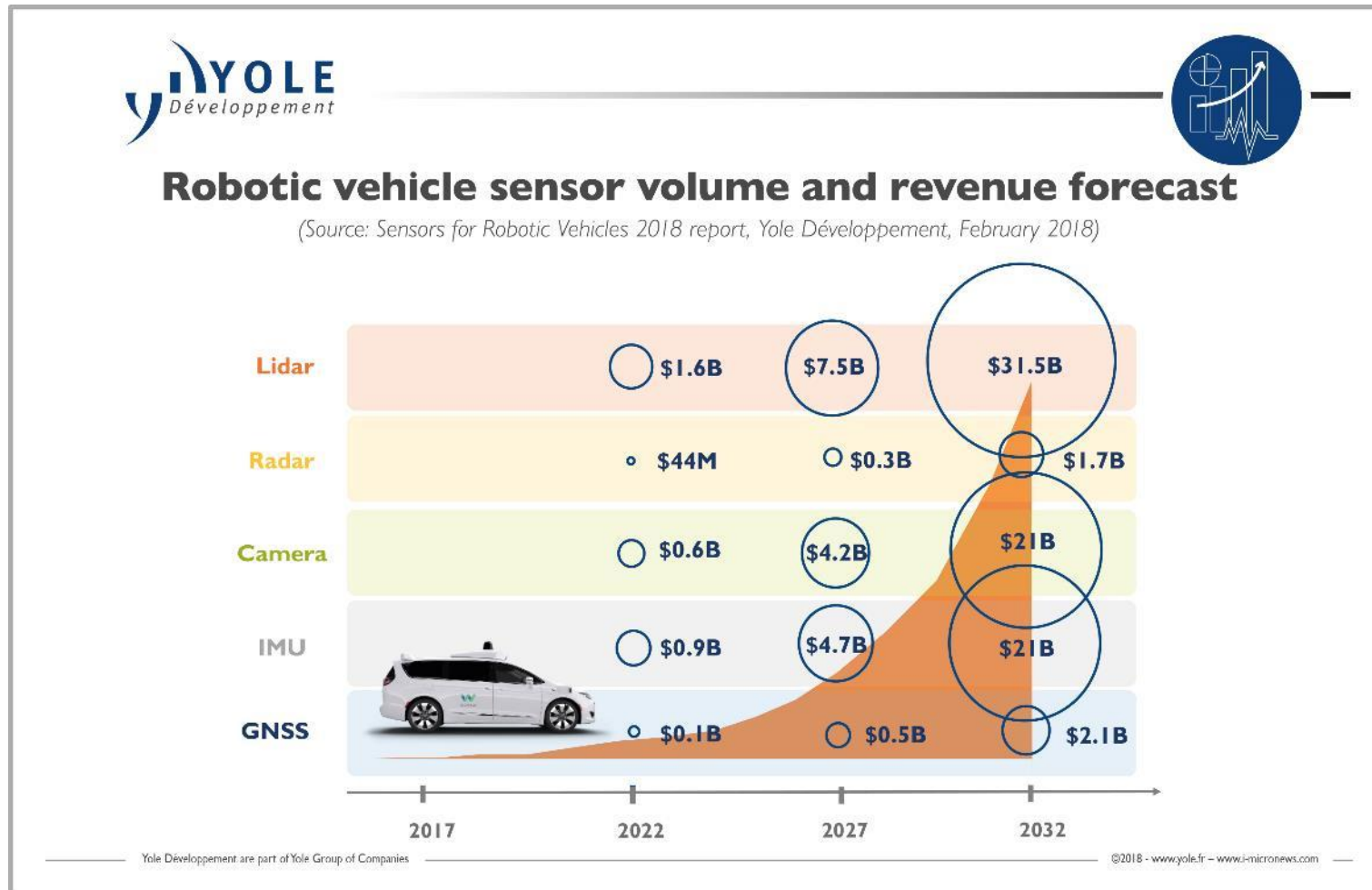
FRAMEWORK CONDITIONS

Intensified interest in driver assistance & autonomous driving



FRAMEWORK CONDITIONS

The camera & LIDAR market is expected to reach \$52,5B in 2032



OVERALL OBJECTIVES

Provider of innovative sensors and sensor systems in vehicle business



**Positioning as focused provider of innovative sensors and sensor systems
in OEM & Tier 1 vehicle business**

1

**Expanding product
portfolio and increase
of added value**
in the LiDAR and
cameras segments

2

Market expansion
Market entry into
special & commercial vehicles
with selected applications
and systems

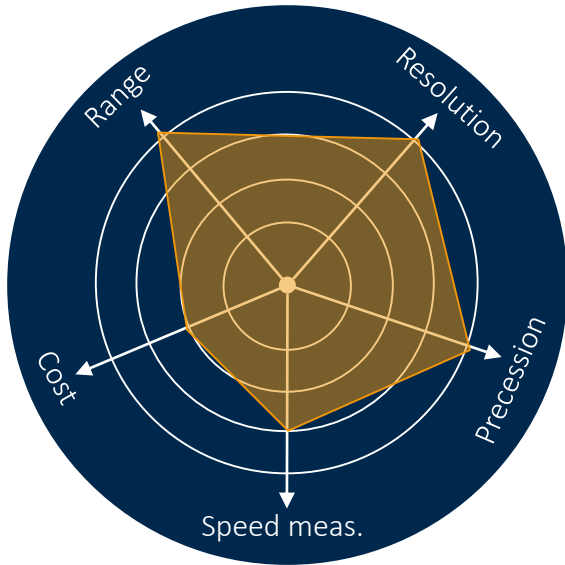
3

From sensor to system
Camera, LIDAR >>
advanced driving assistance
systems (ADAS) & sensor
fusion

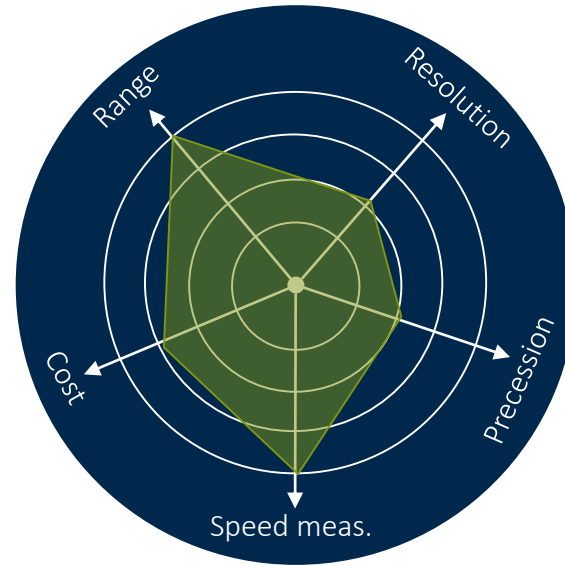
1. EXPANDING OUR PRODUCT PORTFOLIO

For autonomous driving a combination of sensors ist necessary

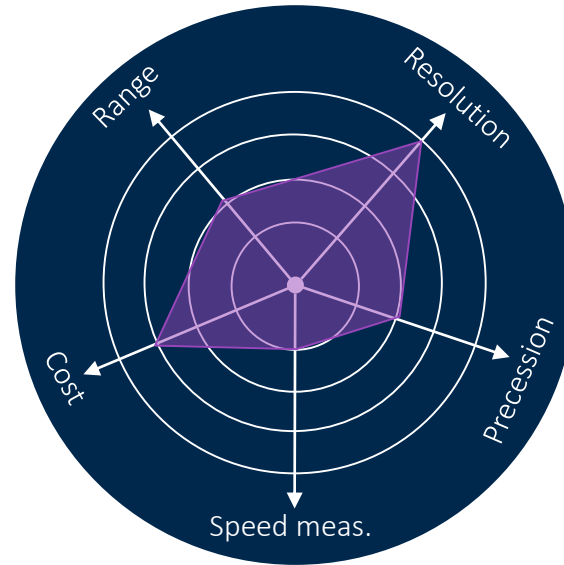
LiDAR



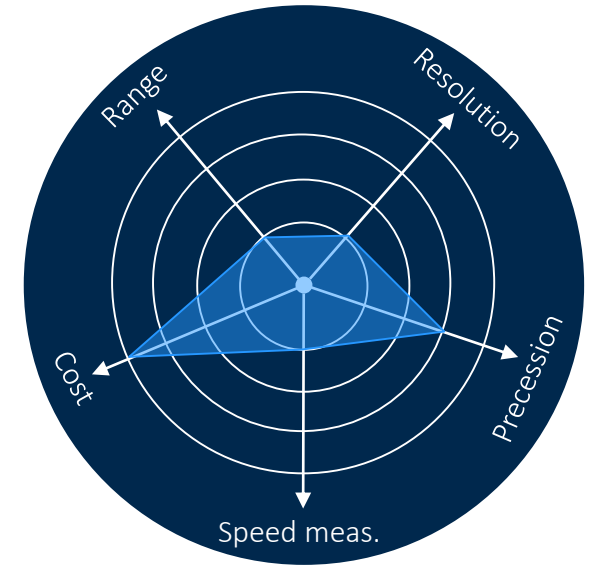
RADAR



Camera

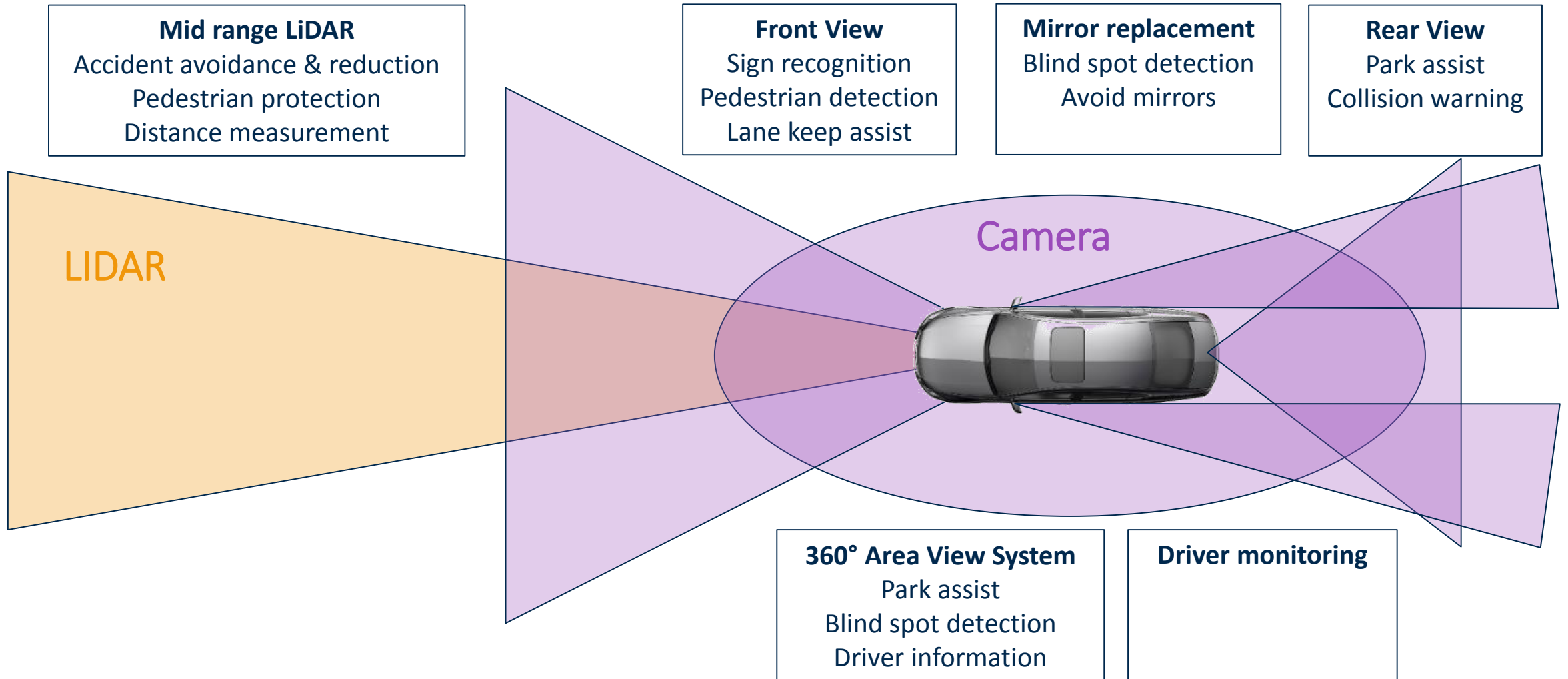


Ultrasonic



1. EXPANDING OUR PRODUCT PORTFOLIO

We concentrate on LiDAR and camera applications



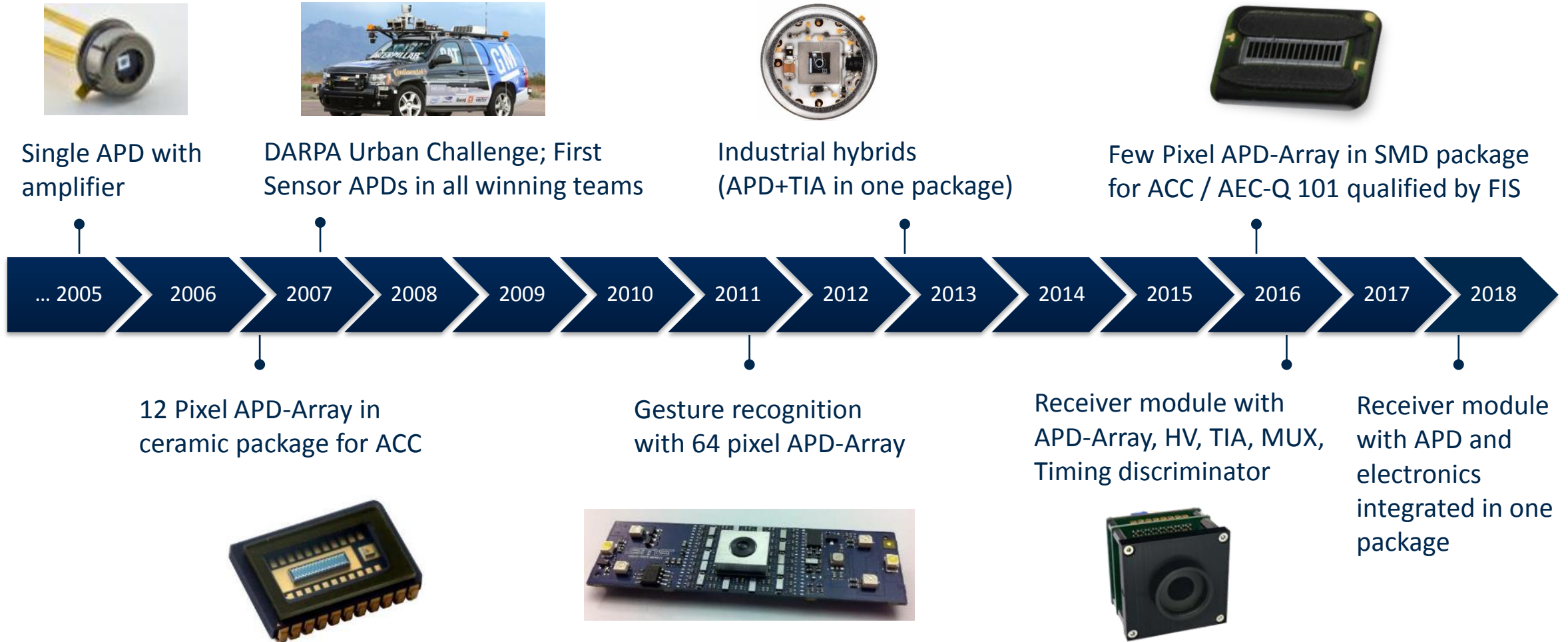
1. EXPANDING OUR PRODUCT PORTFOLIO

LiDAR: We differentiate through 8 key respects

1	2	3	4
20+ years experience in APD production	Customizing capability for die, package and modules in-house	ISO TS 16949 certified production and testing	Sensor only company
5	6	7	8
Lowest noise	Highest sensitivity for 905nm	AEC-Q 101 qualified APD arrays	Innovative roadmap

LIDAR

We have a long standing experience and expertise



LIDAR

Next steps: Securing and further developing our competitive advantage

- 1** “First LiDAR”: Crossfunctional tiger team for enhanced impact
Marketing/Sales/Solution/Development
- 2** Alliances with complimentary suppliers for extended reach
Solutions/Development
- 3** Innovative product roadmap and forward integration to ensure market leadership
Solutions/Development
- 4** Cost down to meet future requirements of volume markets
Production

LIDAR

Our activities are aimed at automotive and industrial applications


Automotive



The left image shows a silver Volvo SUV with a LiDAR sensor mounted on its roof. The right image shows a small, white, boxy autonomous shuttle vehicle. Both images are credited to www.megatechnews.com and <http://www.driverless-future.com> respectively.

- Safety, comfort and cost reduction infrastructure drive development of partly or fully autonomous vehicles
- First adaptation: special vehicles
- Large volume: passenger car

Industrial



The left image shows a forklift with a LiDAR sensor mounted on its mast. The middle image shows a truck on a highway with a LiDAR sensor mounted on its roof. The right image shows a 3D point cloud map of a tunnel. All three images are credited to www.sick.de and www.geospatialworld.net respectively.

- Mix of mature and emerging applications
- Industrial area applications include
 - Unmanned guided vehicles (UGV)
 - Security scanners
 - Mapping applications
 - Range finding (Point measurement)

1. EXPANDING OUR PRODUCT PORTFOLIO

Camera: We differentiate through 8 key respects

1

Long-standing camera
experience

2

Automotive network
in new markets

3

Specialist for harsh
environment and low-
light applications

4

Tailor made solutions
also possible in small-
scale production

5

New industrialized
“Blue Next” camera
generation

6

Camera to system
concept

7

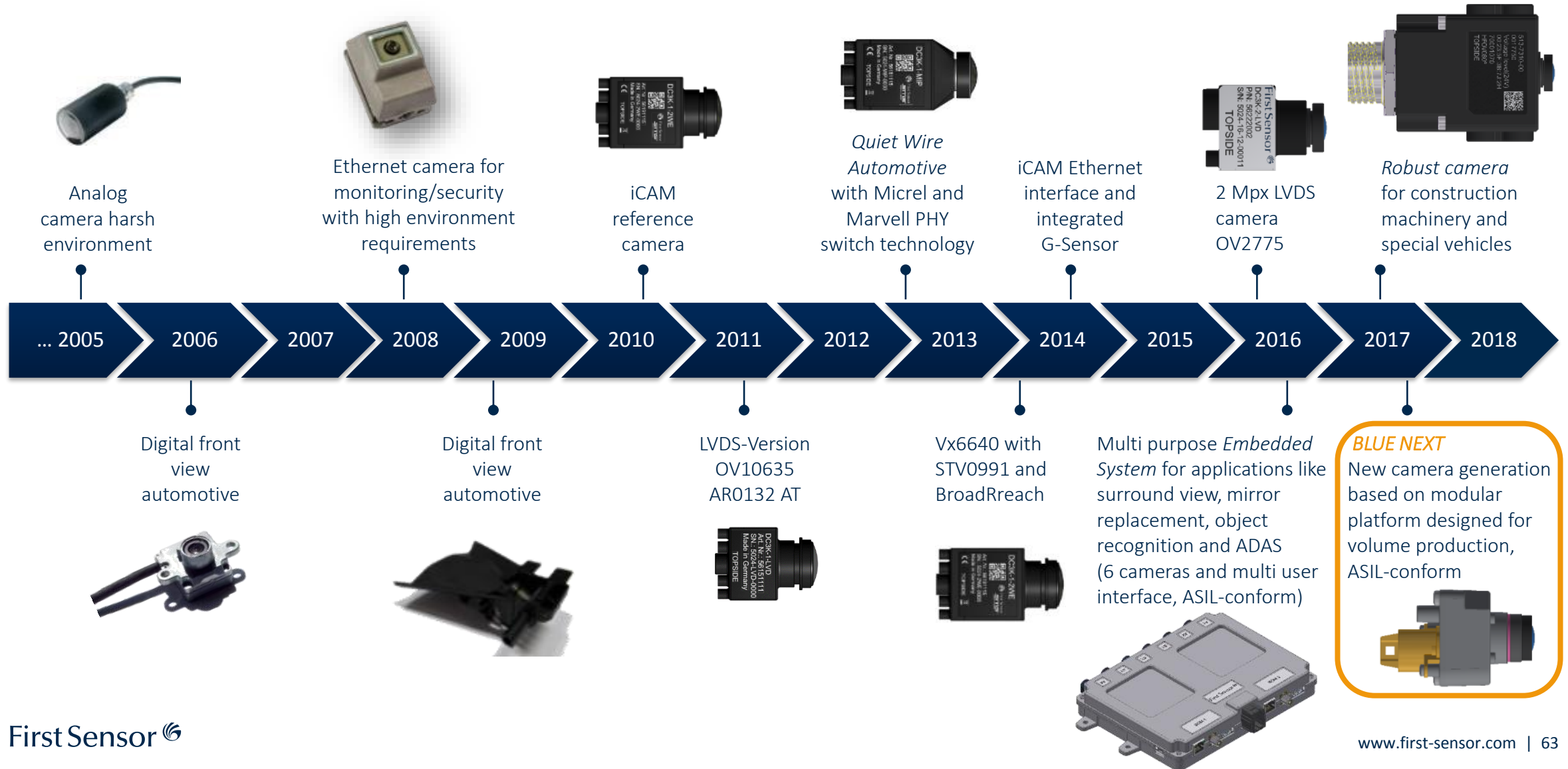
Embedded ECU
platform for sensor
fusion

8

Production and
development “Made
in Germany”

CAMERA

Our volume production of a new camera generation has started



CAMERA

Next steps: Increase market presence

- 1** Expand “Blue Next” camera family
Development and industrialization of “Blue Next” camera solutions
- 2** Worldwide sales offensive
Enter identified target customers
- 3** Potential in related markets
Use existing market position in industrial area



2. MARKET EXPANSION

Today, car OEM & Tier 1 account for the majority of sales



2. MARKET EXPANSION

We can develop further potential with commercial & special vehicles

<div>Segments</div> <div>Customers</div>	LIDAR	Cameras	Camera Systems	ADAS Systems Multiple Sensors Sensor Fusion
Car OEM & Tier 1	Components	Customized cameras		
Commercial & Special vehicles OEM & Tier 1	Components, Subsystems and Manufacturing services	Standard cameras, tailor made solutions	Surround view, Mirror replacement, Blind spot detection	Turn assist, Break assist, Platooning, Pedestrian recognition, Autonomous driving

2. MARKET EXPANSION

Our focus is on target customers & leads with significant annual sales

1 Focus on defined target clients

2 Leads with potential annual sales
> €500.000 per project / product

Car OEM & Tier 1



Trucks



Bus



Special vehicles

(agriculture, mining
machines, fork lifters)



2. MARKET EXPANSION

We focus on the European truck market

- Mediocre annual growth of Truck sales 3 % p.a.
BUT double digit growth of revenue expected
- Focus on innovations; trend to fully or partly autonomous driving
- European key manufacturers: ~50% market share



Daimler Trucks

(500 Tsd / a)



VOLVO Group

(200 Tsd / a)



VW Group

(450 Tsd / a)



PACCAR

(150 Tsd / a)



2. MARKET EXPANSION

Next steps: Target market for commercial & special vehicles

- 1** Expand products experience with car OEM & Tier 1
Offer products for trucks, buses and special vehicles
- 2** Initial focus on European market
Sales team targets key manufacturers
- 3** Innovate according to market specific requirements
Basis for future orders
- 4** Sensor fusion and system expertise
Groundwork for long term market presence

3. FROM SENSOR TO SYSTEM

The trend is towards the fusion of different sensors

Autonomous Level	Level 1 Assisted Driving	Level 2 Partly Automated	Level 3 Highly Automated	Level 4 Fully Automated	Level 5 Driverless
Functionality	Active Cruise Control (ACC) Lane departure warning system (LDWS)	Lane Keep Assist (LKA) Park Assist (PA)	Automatic Emergency Brake (AEB) Driver Monitoring (DM) Traffic Jam Assist (TJA)	Autopilot on Highway (AP)	Autopilot everywhere
Sensors	<div>+</div> Ultrasonic Radar (long range) Front Camera	<div>+</div> Surround Camera	<div>+</div> <div>+</div> Radar (short range) Driver Camera Lidar	SENSOR Fusion	SENSOR Fusion

3. FROM SENSOR TO SYSTEM

The sensor fusion has already begun



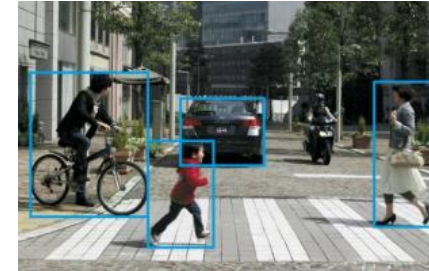
Camera Platform:

- Blue Next Family
- LVDS, ETH, 2 WE ETH ..



Camera Systems

- Surround View
- Virtual Mirror



Camera Systems & object recognition:

- Lane departure
- Sign recognition
- ...



ADAS Systems & Sensor fusion

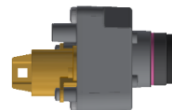
- Turn Assist
- Night Vision



Digital front view automotive



BLUE NEXT – Camera generation based on modular platform designed for volume production, ASIL-conform



ECU Platform:

Multi purpose
Embedded System for various applications
Scalable processor family ASIL-conform



Software Platform:

Base software with application specific modules:

- Area view
- Object recognition
- ...

Sensor fusion:

Camera, Radar, LIDAR, US

3. FROM SENSOR TO SYSTEM

We are taking part with our Embedded ECU



Sensor Fusion

- Camera
- Radar
- Ultrasonic
- LiDAR

Target Applications

- Area View
- Mirror Replacement
- Turn Assist
- Object/Sign Recognition

3. FROM SENSOR TO SYSTEM

Next steps: We lay the foundations for sensor fusion

- 1** Extend software capabilities
Form a dedicated software team
- 2** Entry into systems market
Strategic customers worldwide
- 3** Partnerships with customers and suppliers
Identify and strengthen alliances
- 4** Development of software platform
Modular software on system-, com- and application-level

STRATEGY FOR DRIVER ASSISTANCE & AUTONOMOUS DRIVING

Summary

- 1 For autonomous driving a combination of sensors is necessary
- 2 Expanding our product portfolio: We concentrate on LiDAR and camera applications
- 3 Market expansion: We focus on the commercial and special vehicles market, too
- 4 From Sensor to System: We develop our own software platform
- 5 Our LiDAR and camera sales will increase significantly in the upcoming years

Q&A SESSION

NEXT PRESSURE GENERATION

EXPANSION OF FIRST SENSOR'S PRODUCT
FAMILIES

DR. MARC SCHILLGALIES, VP DEVELOPMENT



FRAMEWORK CONDITIONS

Continual growth of MEMS pressure sensor market

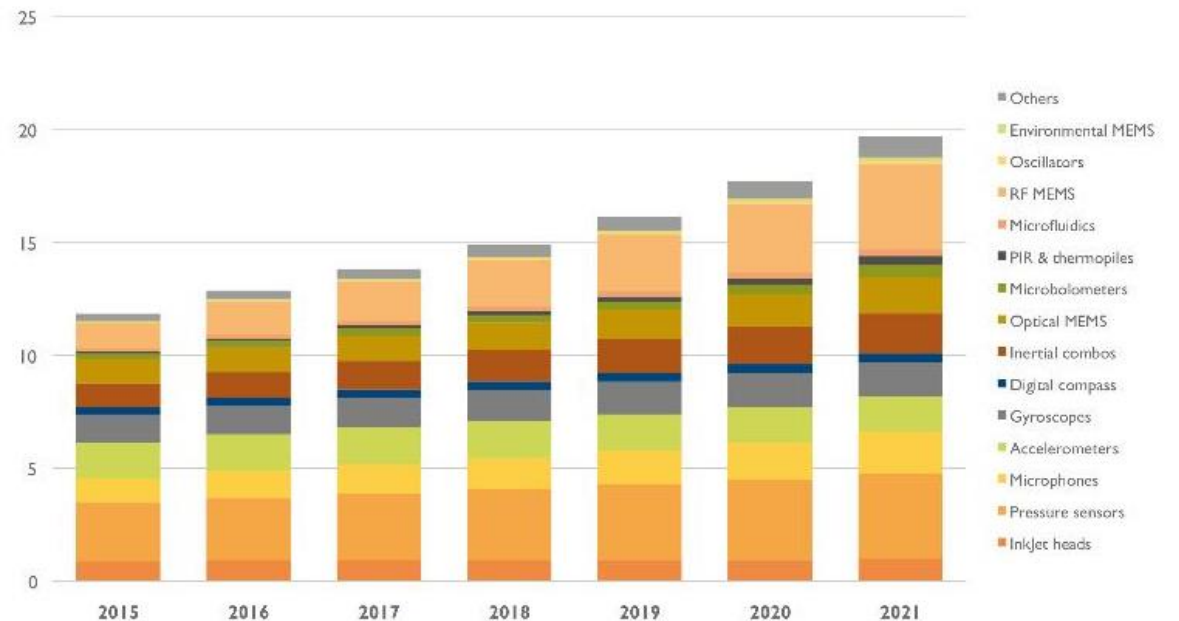
MEMS and sensors revenue market in B\$

Source: Status of the MEMS Industry 2017, Yole Development, June 2017



2015-2021 MEMS market forecast in US\$B

Source: Status of the MEMS Industry report, Yole Development, May 2017



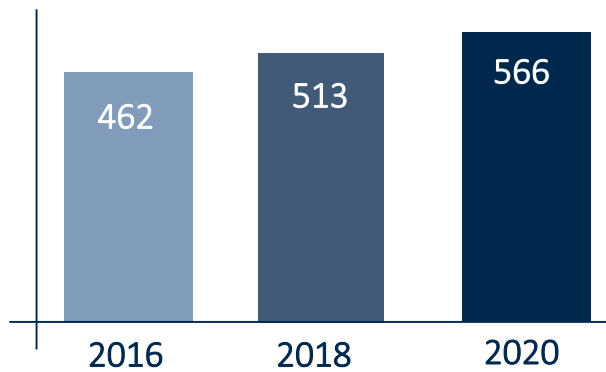
FRAMEWORK CONDITIONS

MEMS pressure sensors business is driven by megatrends

Smart Factory



Global market (\$100 mn)

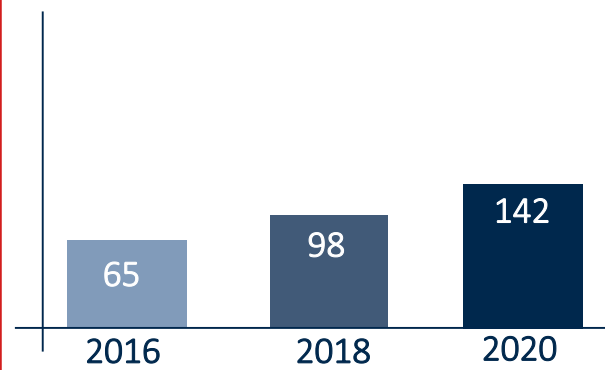


Source: MarketsAnd Markets, KESSIA

Smart Health



Global market (\$100 mn)

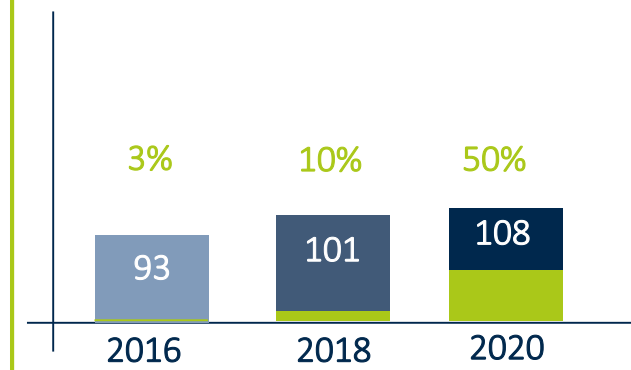


Source: Statista

Green Mobility



Global light vehicle assembly & share of alternative drives (mn units)



Source: PwC Autofacts

FRAMEWORK CONDITIONS

Pressure measurement is extremely versatile



1 mbar
100 Pa
0,015 psi

10 mbar
1 kPa
0,15 psi

100 mbar
10 kPa
1,5 psi

1 bar
100 kPa
15 psi

10 bar
1 MPa
150 psi

100 bar
10 MPa
1.500 psi

1.000 bar
100 MPa
15.000 psi

FRAMEWORK CONDITIONS

We have extensive experience in MEMS sensor technology

Sensor chip technology



Market & application expertise



Packaging & calibration technology



First Sensor 

Standard products & solutions and distribution of standard sensors

OVERALL OBJECTIVES

Further strenghtening our pressure sensor footprint



Positioning as a provider of high-precision sensors for ultra-low to high pressure measurement that are suitable for the toughest conditions

1



Expand pressure platforms for ultra-low to high pressure:
For applications in the industrial, medical and mobility target markets

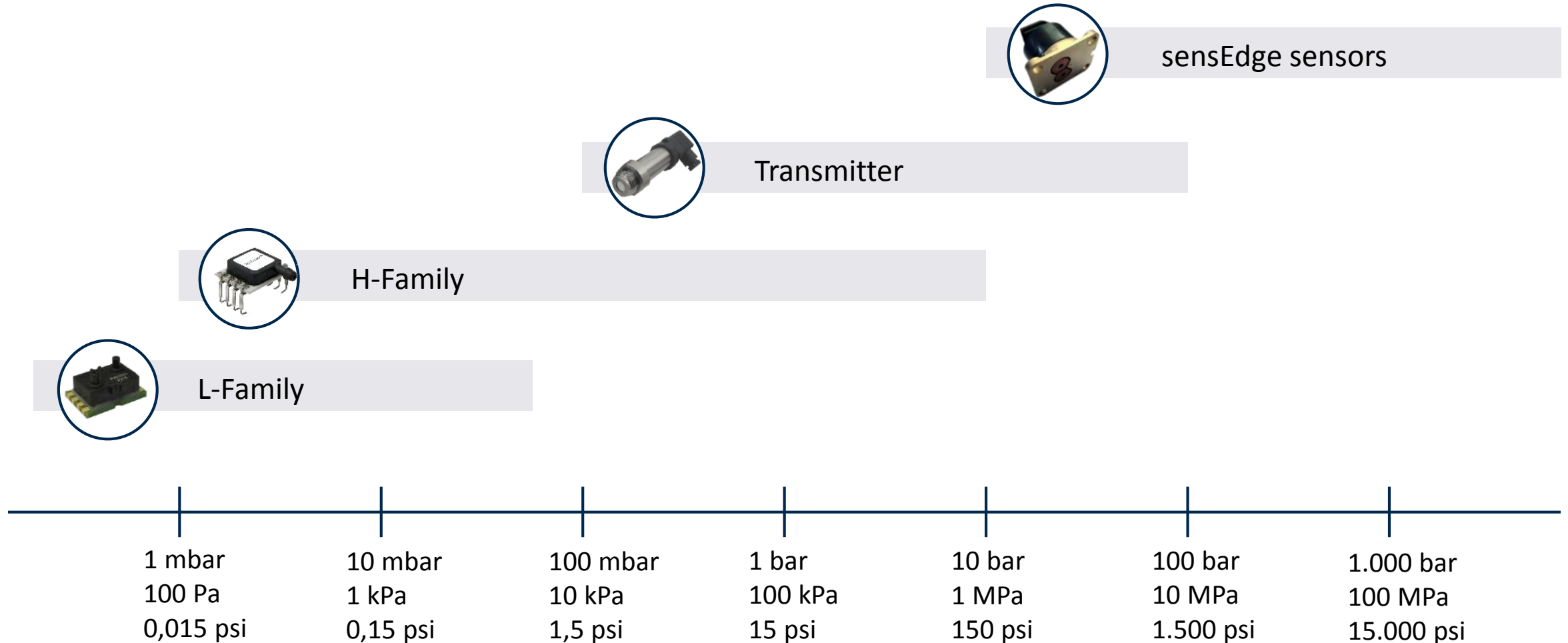
2



Forward Integration:
All from a single source – from sensor chips to complex sensor systems

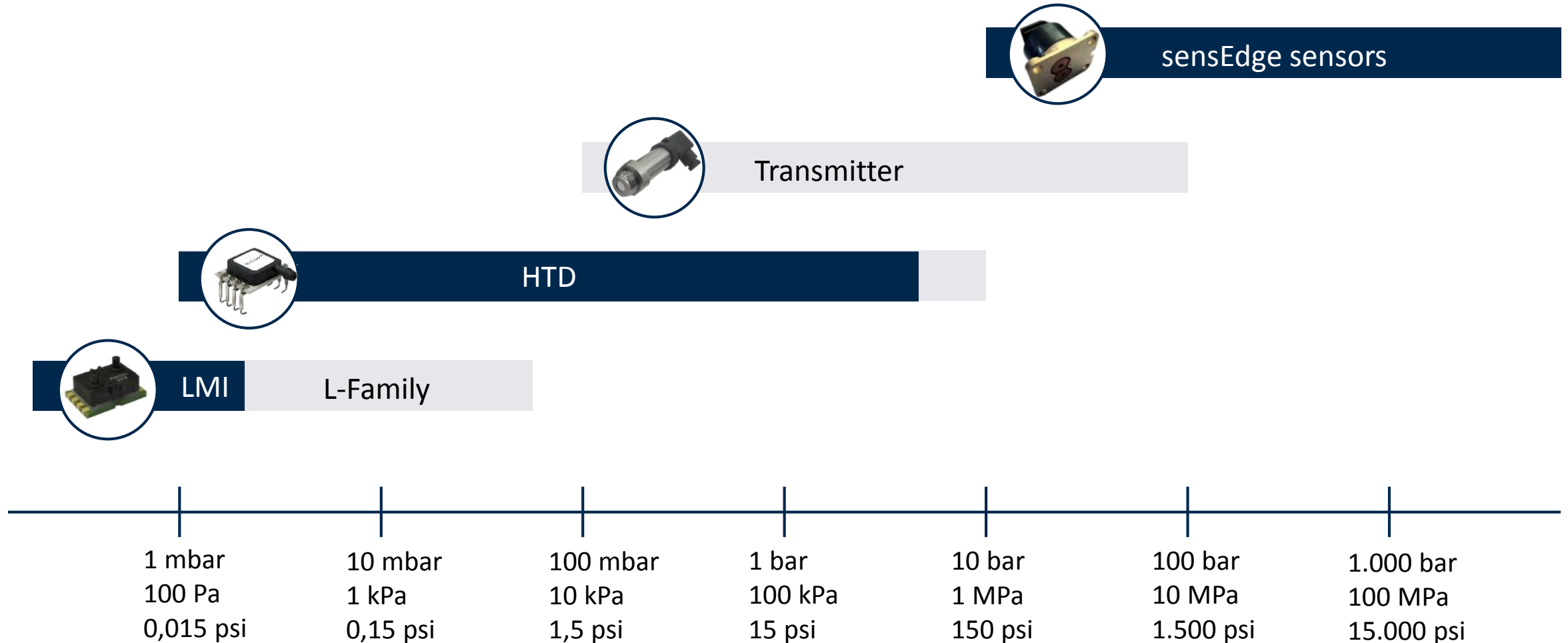
1. EXPAND PRESSURE PLATFORMS

We cover a broad range from ultra-low to high pressure sensors



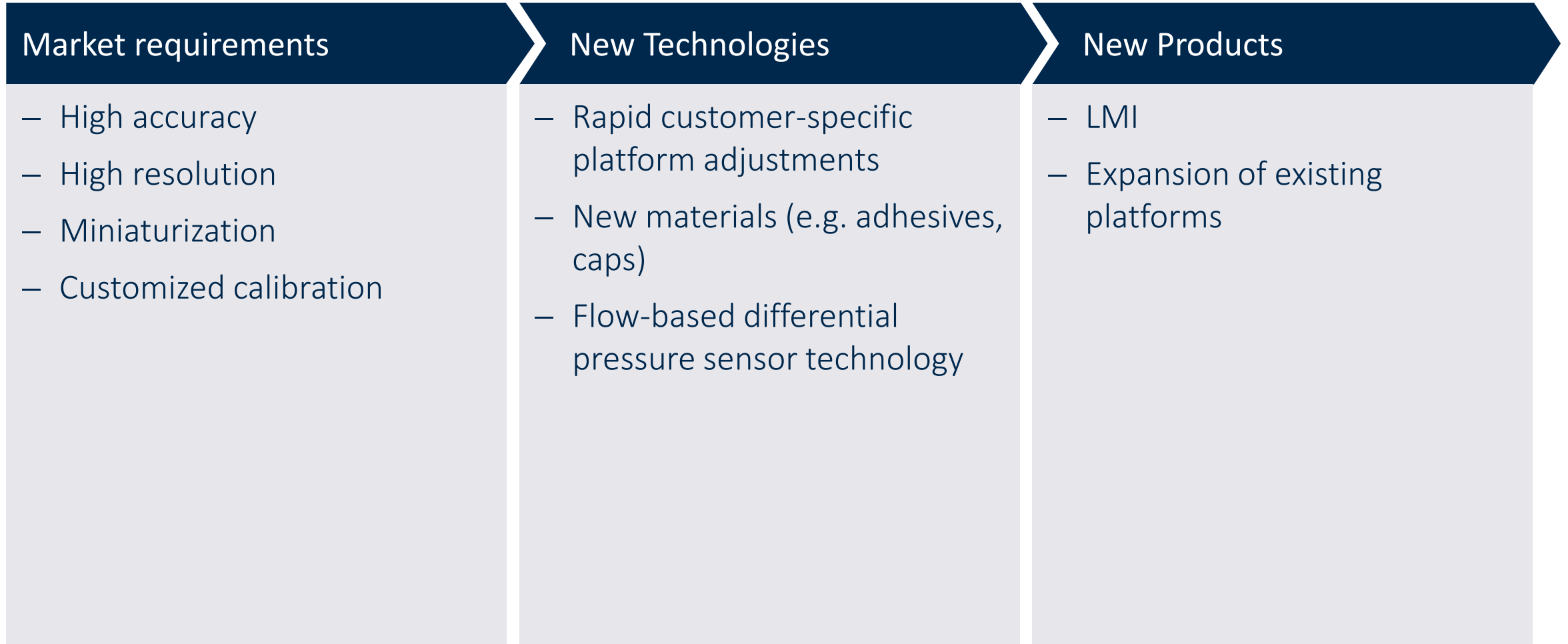
1. EXPAND PRESSURE PLATFORMS

We strengthen our platforms with new pressure sensors






1. EXPAND PRESSURE PLATFORMS

L-Family: Our platform for ultra-low pressure measurement



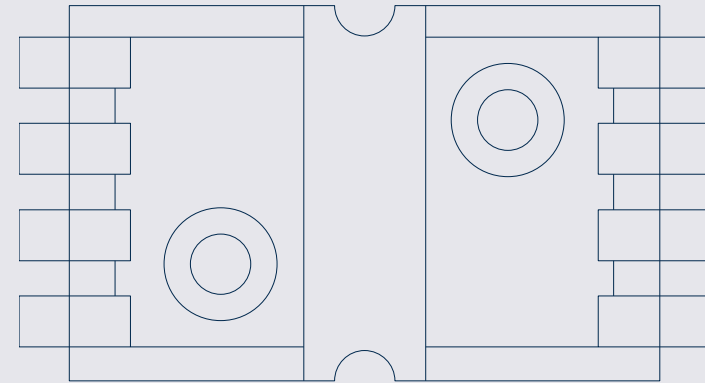
L-FAMILY

Based on micro-flow: LMI series for ultra-low differential pressure

-  **Innovative micro-flow technology**
-  **Extreme miniaturization:** Micro-flow channel integrated within the silicon sensor chip
-  **Extremely low production tolerances** and cost-effective **mass production**
-  **Immunity** to both dust-laden and humid air
-  **Excellent sensitivity, accuracy, offset long term stability and long service life**



Measuring ranges from 0,25 mbar



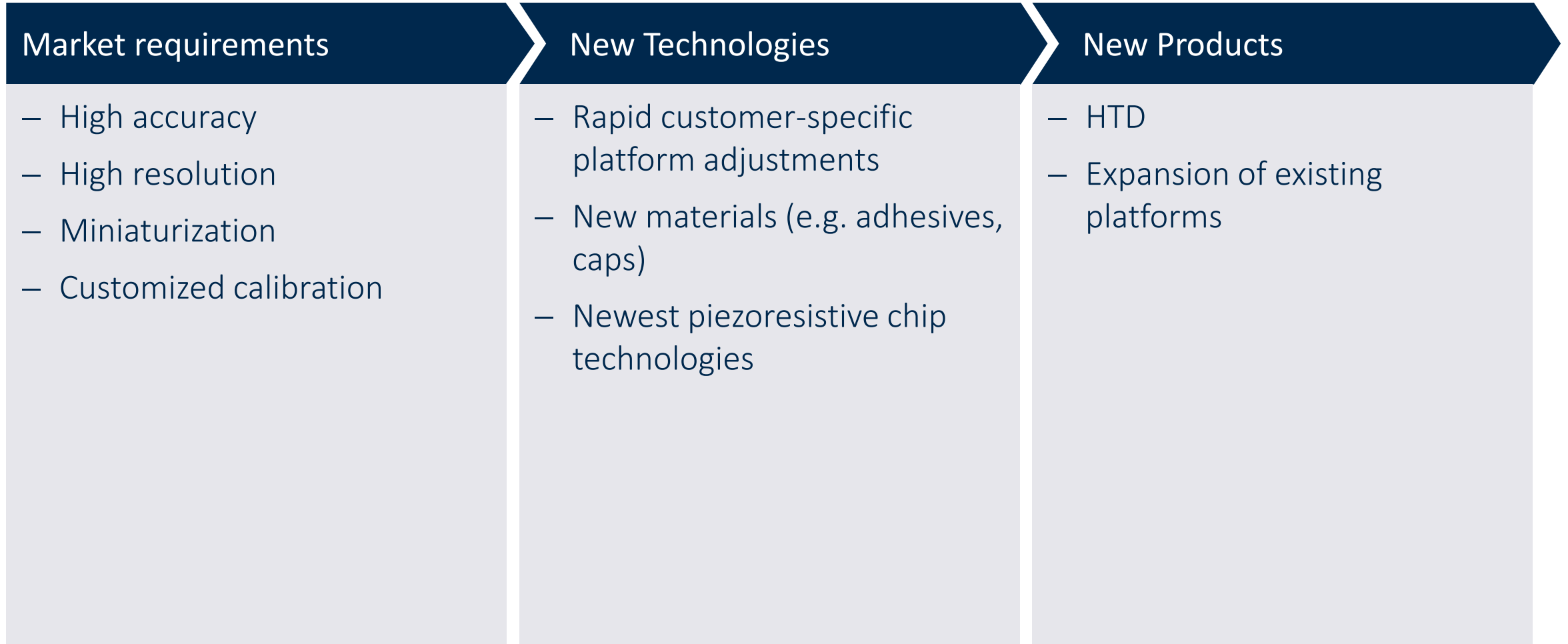
L-FAMILY

LMI sensors are ideal for HVAC and medical device applications








1. EXPAND PRESSURE PLATFORMS

H-Family: Our low & mid pressure platform



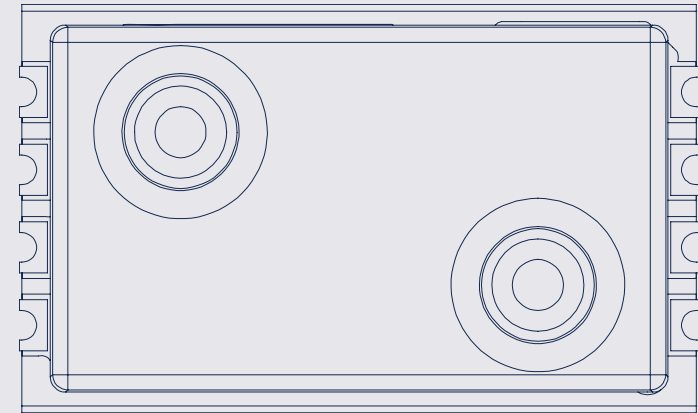
H-FAMILY

Piezoresistive measurement: HTD series for low differential pressure

-  **Distribution** of licenced standard products
-  **Piezoresistive measurement** in addition to LMI micro-flow series
-  **Very small and flat:** 8 x 13 mm, height <7 mm
Ideal for space-saving manifold assemblies
-  SPI interface with 15 bit resolution
-  High-accuracy and long-term stability



Measuring ranges from
1 mbar to 7 bar



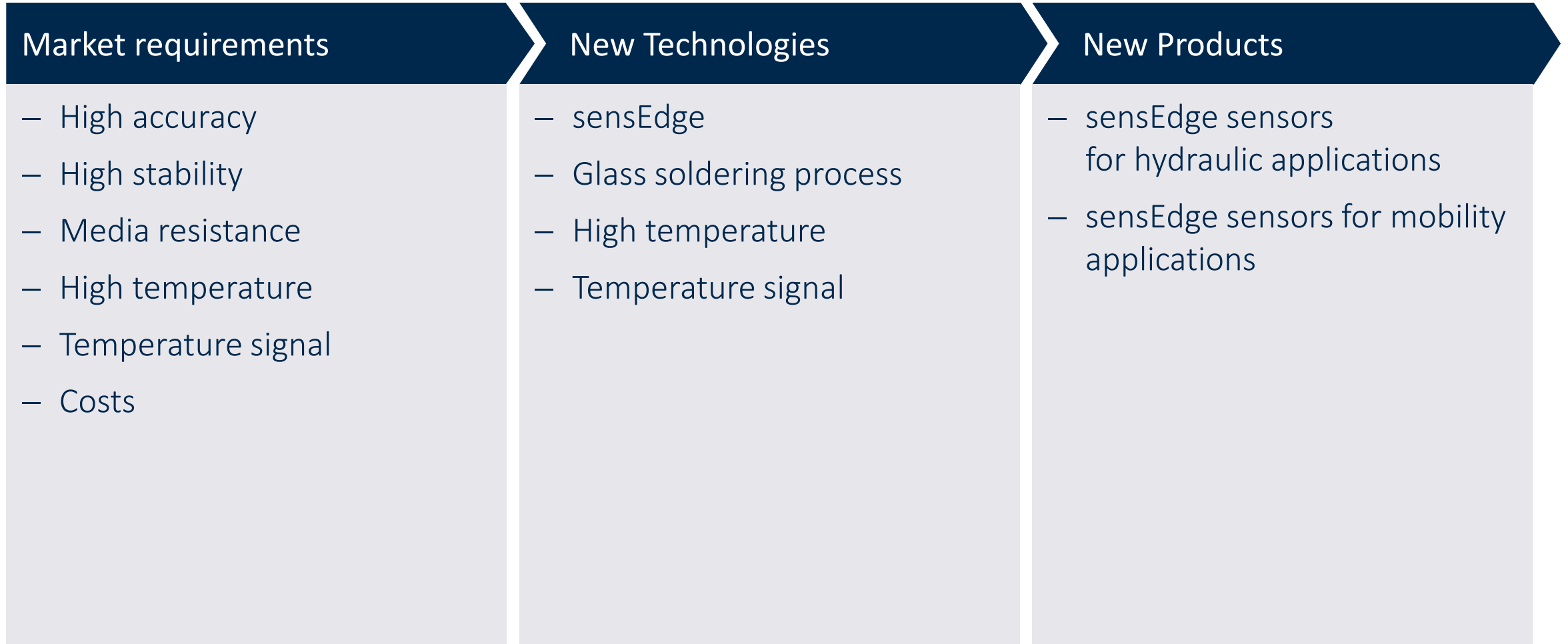
H-FAMILY

HTD sensors are also suitable for HVAC & medical device applications








1. EXPAND PRESSURE PLATFORMS

SensEdge sensors: Our high pressure platform



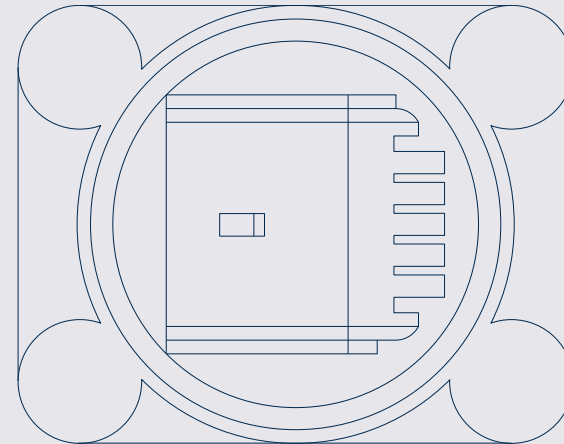
SENSEGE SENSORS

Pinpoint reading: Our technology for high pressure

-  **Piezoresistive sensor elements** manufactured separately from the main body section
-  Can be used to generate a **pinpoint reading** of mechanical stress
-  **Very small:** 0,8 x 0,8 mm
-  High measuring sensitivity
-  Not sensitive to heat



Measuring ranges up to 3,000 bar



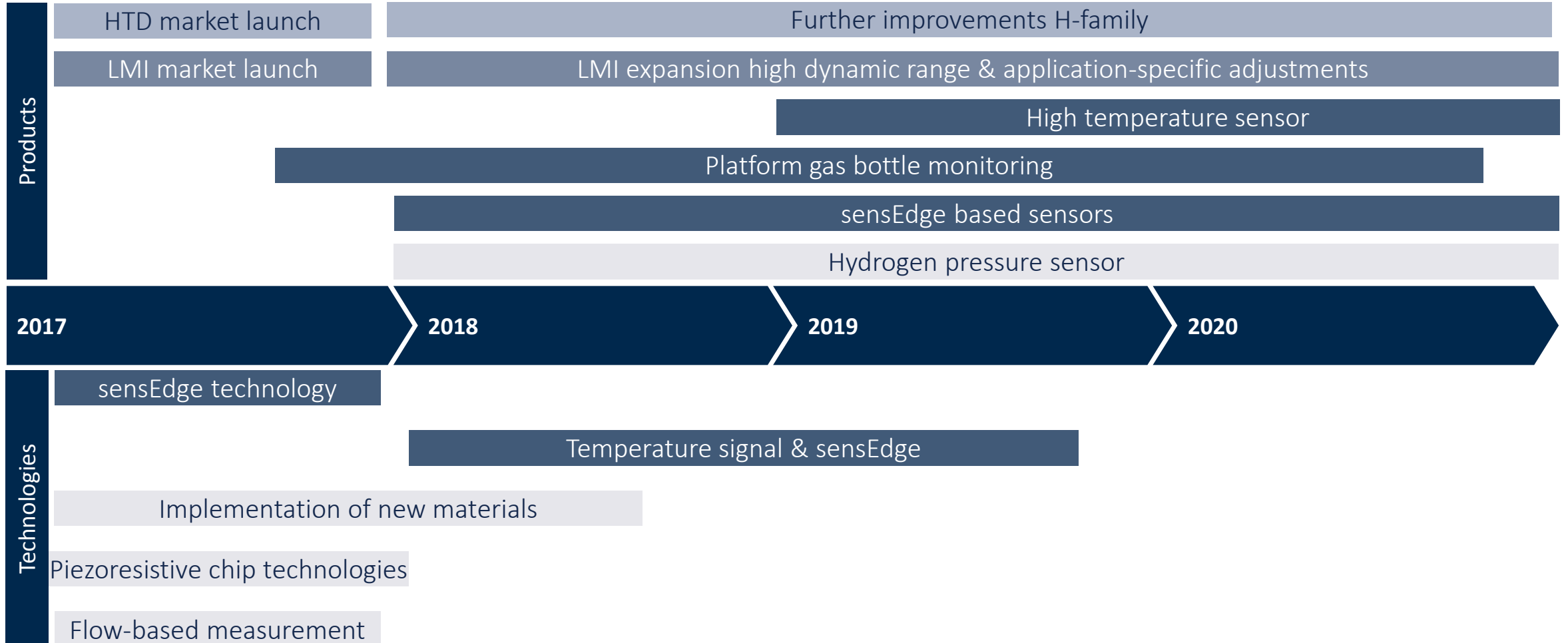
SENSEGE SENSORS

We develop sensors for hydraulic & green mobility applications



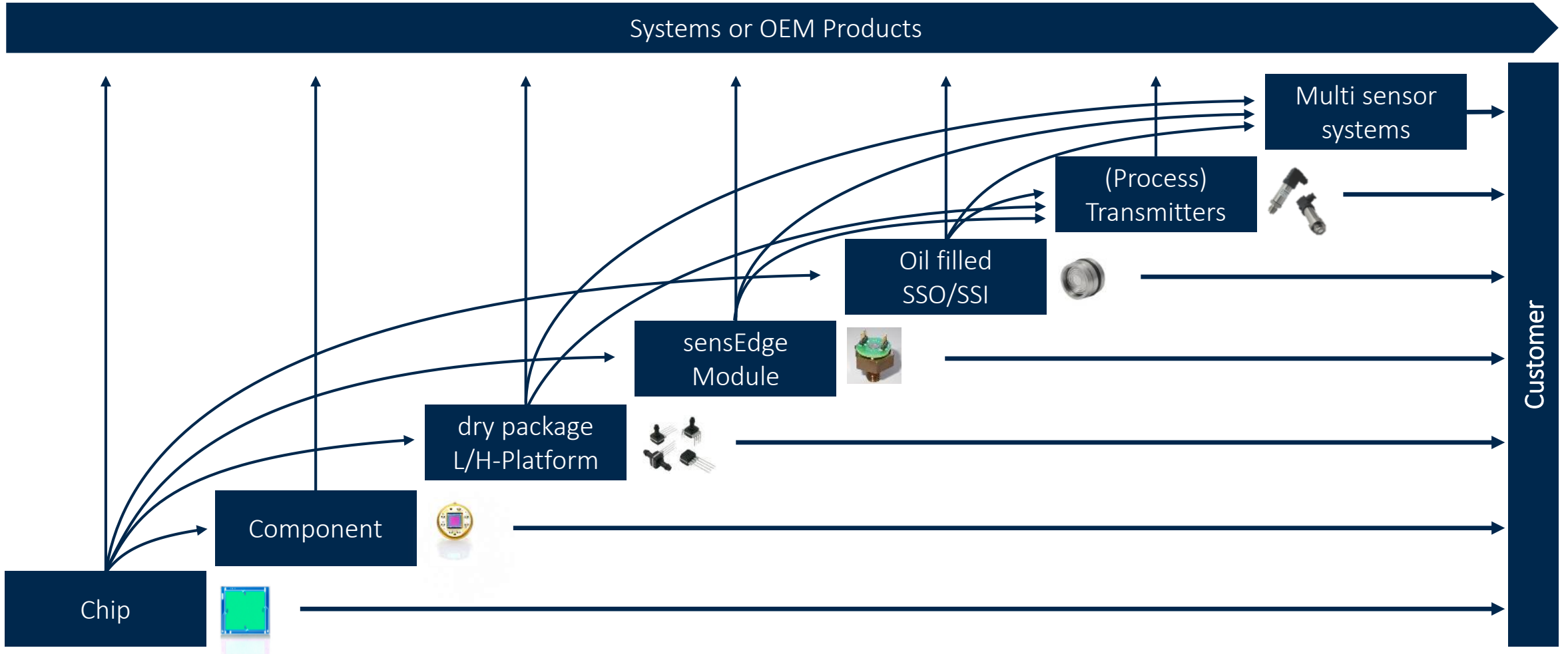
1. EXPAND PRESSURE PLATFORMS

Our roadmap leads to the expansion of our pressure platforms



2. FORWARD INTEGRATION

From chip to system: We are able to offer all from a single source



2. FORWARD INTEGRATION

One example is a multi sensor system for HVAC



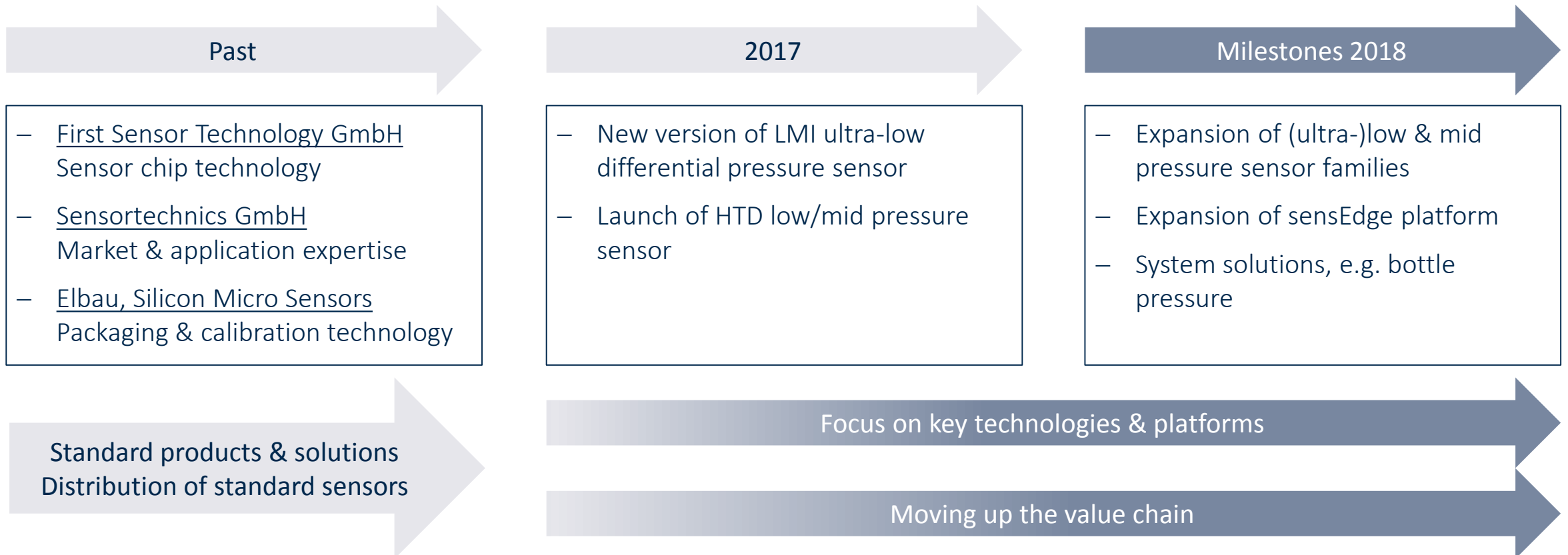
EXPANSION OF FIRST SENSOR'S PRODUCT FAMILIES

Summary

- 1 MEMS pressure sensors business is driven by megatrends
- 2 Pressure measurement is extremely versatile. We cover a broad range from ultra-low to high pressure sensors
- 3 First Sensor is focused on high-precision pressure sensor platforms
- 4 We strengthen our platforms with new pressure sensors
- 5 We use our pressure platforms and forward integration to grow with key products & customers

EXPANSION OF FIRST SENSOR'S PRODUCT FAMILIES

Milestones 2018



Q&A SESSION

MEET FIRST SENSOR

Financial calendar 2018

When?	What?
14.05.2018	Q1 Interim Report
15.05. 2018	German Spring Conference, Frankfurt am Main
23.05.2017	Annual Meeting 2018, Penta Hotel, Grünauer Str. 1, 12557 Berlin
13.08.2017	6-Month Financial Report
12.11.2017	Q3 Interim Report
26.-28.11.2017	Analyst' Conference: German Equity Forum, Frankfurt am Main

WE LEAD THE FUTURE

Financial Statement Press Conference & Capital Market Day

March 22, 2018

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