



ams

## Full year + fourth quarter results 2016



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# ams at a glance



## Our business

- Focus on high performance sensor solutions
- Sensor solutions, sensor ICs, interfaces, related software
- Small, low power, highest sensitivity, multi-sensor integration
- Best-in-class solutions for leading OEMs

## Our end markets

- Consumer & Communications (C&C) – 51% of sales 2016
- Automotive, Industrial, Medical (AIM) – 49% of sales 2016

## By the numbers

- 830+ engineers
- 20 design centers, 3 manufacturing locations
- 35 years of design and manufacturing know-how
- 3,300+ employees worldwide
- 8,000+ customers

## ams strategy

### Build the global leader in sensor solutions



#### **True leadership in four sensor areas**

- **Optical**
- **Imaging**
- **Environmental**
- **Audio**

#### **Best-in-class performance per sensor area and in multi-sensor application solutions**

- Smallest, lowest cost, high volume multi-sensor modules, driving monolithic integration
- Sensor algorithms and sensor fusion software
- Application software for differentiating end-user experiences

#### **Diversified business with balanced application and customer portfolio**

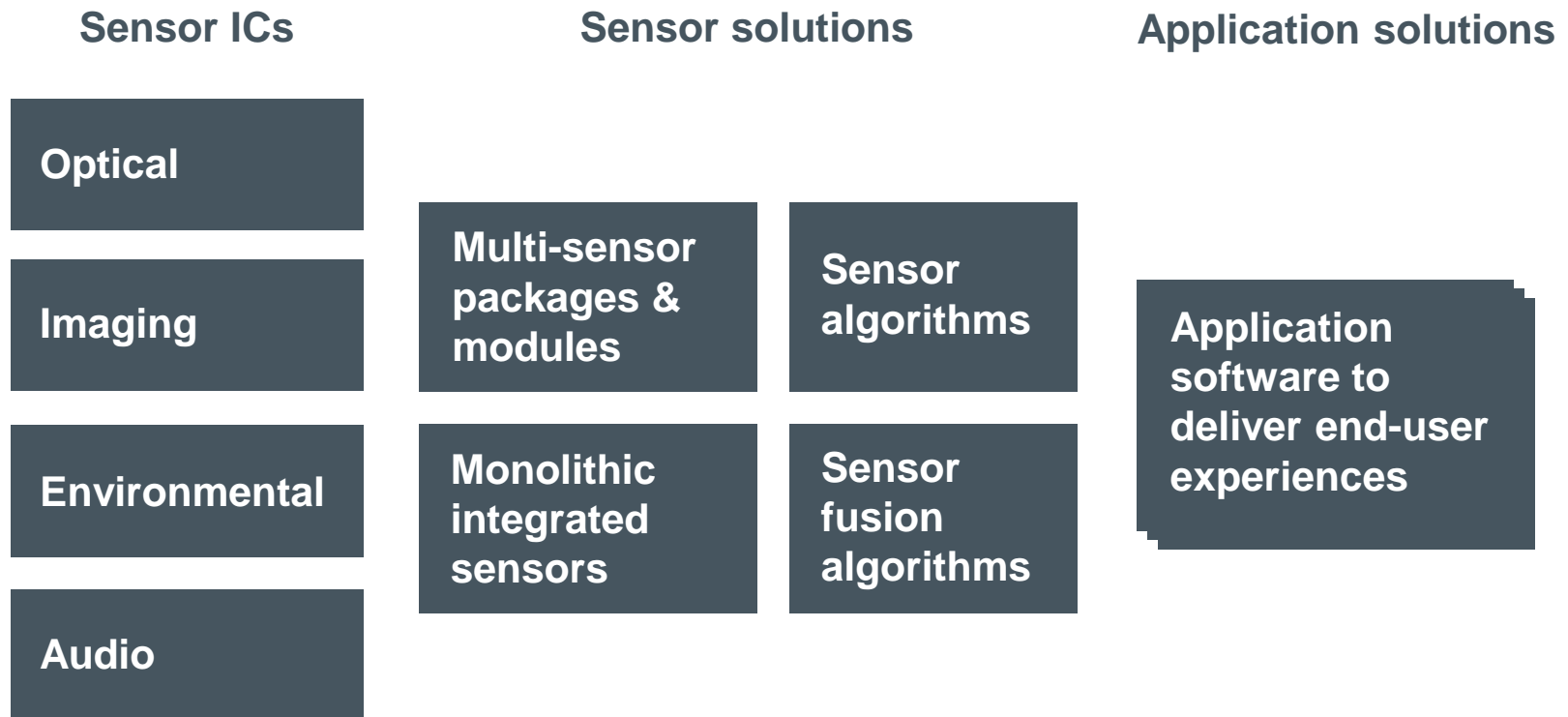
- Long-term target mix of at least 60/40 C&C / AIM split
- Broader customer base across applications

#### **Financial target model of 30% revenue CAGR for next 3 years and 30% EBIT margin from 2019**

- Primary focus on earnings growth

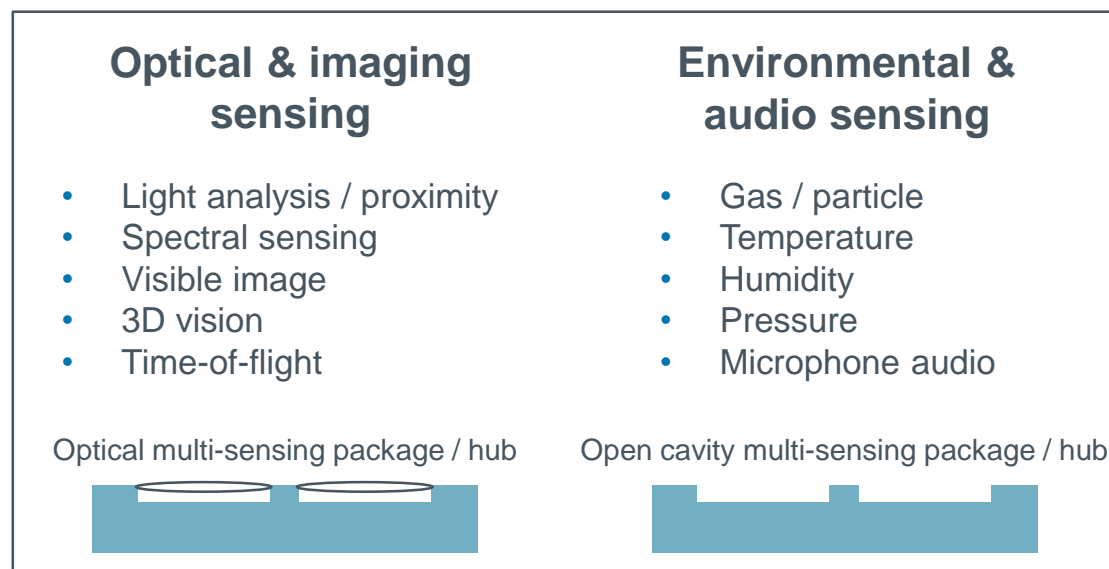
# ams strategic value chain

Delivering best-in-class sensor solutions and applications



# Multi-sensor solutions and sensor fusion

## ams focus



## Motion sensing

- Accelerometer
- Gyroscope
- Magnetometer
- IMU (Inertial Measurement Unit)

Closed package multi-sensing hub



## Strategic impact on value chain

- Hardware and software content needed for full solutions
- Major players can offer one-stop capabilities

# 2016 – a successful year of transformation

## **Focused strategy around leadership in optical, imaging, environmental, audio sensing**

- Active management of technology portfolio, clear revenue growth and margin targets

## **Transforming acquisition of optical packaging leader Heptagon**

- Global leader in optical sensing with unique IP, strategic value for all sensing focus areas

## **Acquisition of CCMOSS creates leadership in gas sensing, MAZeT and Incus add specific expertise**

- Full value chain in environmental/gas sensing, broadening of spectral and audio sensing portfolio

## **Divestment of NFC and RFID business underlines strategic focus**

- Maximizing value of non-core area while retaining IP for wireless sensor solutions

## **Expected solid performance of Consumer & Communications business**

- Stronger second half despite customer-specific impact, end market weakness in first half

## **Positive development of automotive, industrial, medical businesses in line with expectations**

- Continued growth in automotive, attractive industrial results, strong pipeline in medical

# Heptagon acquisition: Optical sensing leadership

## Heptagon: Global leader in high end optical packaging

- Market leader and innovation driver in micro-optics and high performance optical packaging
- Advanced optics capabilities enable world-class integration and high end packaging solutions for optical sensing
- Currently focused on consumer market, major supplier into high volume mobile applications
- Customer base includes key customer serving smartphone/mobile device markets
- Substantial revenue growth expected starting mid-year 2017 based on revenue and capacity pipeline and existing customer commitments



## Heptagon differentiation

- Small scale optical features for sensors in small scale package = optical path
- Optical path drives increasing value in optical sensing solutions
- Unique expertise to create mass-producible devices for very high volumes

## ams: Clear #1 in optical sensing

- Scale and ability to drive industry trends
- Outstanding technology and solution capability under one roof

# ams optical sensing solutions

Illumination	Optical path and package	Optical sensor
<ul style="list-style-type: none"> <li>• VCSEL lasers</li> <li>• IR LEDs / LEDs</li> <li>• Discrete / integrated</li> </ul>	<ul style="list-style-type: none"> <li>• Directing light to/from illumination/sensor and in/out of package</li> <li>• Optical features, e.g. lenses, embossing</li> <li>• Small scale high volume optical packages</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-frequency spectral sensors</li> <li>• IR sensors</li> <li>• Multi-diode structures</li> <li>• SPAD diodes</li> <li>• Multi-sensor modules</li> </ul>

**Heptagon acquisition**

**Key differentiation  
enabling performance  
and driving value**

**ams existing business**



# Unique position for 3D sensing

## 3D sensing: Major new market for high value sensing

- Applications include AR/VR, gesture, face recognition, biometrics, improved 2D/video capture, body measurement, autonomous driving
- 3D availability in consumer devices will breed new applications and apps, similar to accelerometer and gyro
- Non-consumer to follow: Industrial IoT (internet of things), Automotive
- 3 key technologies: Structured light, ToF (time-of-flight), stereoscopic cameras
- Structured light: IR illumination of object, accuracy of illumination key to quality of sensing
- ToF: SPAD (avalanche diodes) or iTOF (phase difference) sensing, dedicated illumination
- Stereoscopic cameras: specific illumination needed for high quality sensing

**3D optical path  
and optical sensors  
offer significant  
growth and ASP  
opportunities**

## ams: Broad involvement across 3D sensing technologies

- Optical path as key differentiator, hand-in-hand with packaging for optimum performance
- Tailored optical sensors for best-in-class integrated solutions
- Structured light: High quality random dot illumination
- ToF: Roadmap covering both ToF technologies with high performance solutions
- Stereoscopic cameras: Dedicated illumination

# Optical and image sensing



## Worldwide leader in light sensing solutions

- Clear #1 in optical sensing
- Leadership in sensors and optical path
- Optical path crucial for new sensor applications
- True Color spectral sensing for advanced display management
- Color ALS, ultra-small proximity modules
- 3D sensing capabilities to address emerging applications
- Time-of-flight (ToF) technologies (SPAD, iTOF)
- Spectral sensing for biosensors, color identification, Medical
- Color and spectral sensing for Industrial IoT, smart LED lighting

**Optical path  
and spectral  
sensing drive  
differentiation**

## High value image sensing

- High-performance area and line scan CMOS image sensors
- NanEye miniature camera technology for Medical and Industrial
- Future combination of imaging and spectral sensing

# Audio sensing



## ANC (active noise cancellation)

- High performance solutions based on analog noise reduction technology
- Low power budget + footprint advantages
- Significantly better receive-path audio quality
- In-phone and in-ear/headphone topologies
- Acquisition of Incus broadens ams' solution offering for digital architectures

**Audio sensing  
growth opportunities  
in high-end  
applications**

## MEMS microphone interface ICs

- Continuing market leadership in high volume market
- Leading position in low noise solutions and tight integration
- Strong customer partnership focused on high quality segments
- Digital interface roadmap
- Exploring potential for audio sensor fusion: adding further sensor modalities to audio input hardware

# Environmental (including gas) sensing



## Technology leader in environmental/gas sensing

- End-to-end solution provider
- Unique CMOS-based portfolio for low power, high volume, small form factor
- Key environmental sensing areas
  - MOX gas
  - Infrared gas / presence detection
  - Relative humidity, pressure, temperature
- Broad range of emerging applications in mobile, home/building automation, Industrial IoT and other AIM markets

**Emerging market  
in HABA and  
Industrial IoT, road-  
map for consumer**



## Uniquely positioned for multi-sensor modules and monolithic multi-sensor integration

- Combination of related environmental sensor modalities in module (e.g. gas + relative humidity)
- Integration roadmap to realize low-cost, low-power, smallest size consumer solutions
- Sensor algorithms and application software as value drivers

# Scalable manufacturing model

In-house capacity + manufacturing partnerships



## Internal wafer manufacturing, Austria

- 200mm capacity, 180-190k wafers p.a.
- CMOS / specialty analog down to 180nm
- High volume optical filter deposition line

**Expansion of  
Heptagon  
optical packaging  
capacity on track**



## Internal optical packaging, Singapore

- Technology leader in high end optical packaging
- Major capacity expansion driven by customer volume requirements
- Capex 2016/17 over USD 250m from existing cash

## Manufacturing partnerships for scalability and flexibility

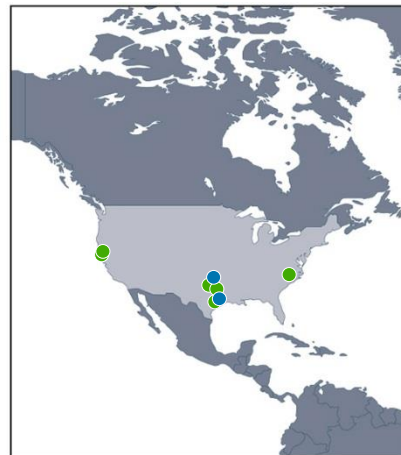
- High volume technology partners TSMC, UMC, Global Foundries
- Attractive multi-year volume path supports growth and margin targets
- Flexible response to end market volatility



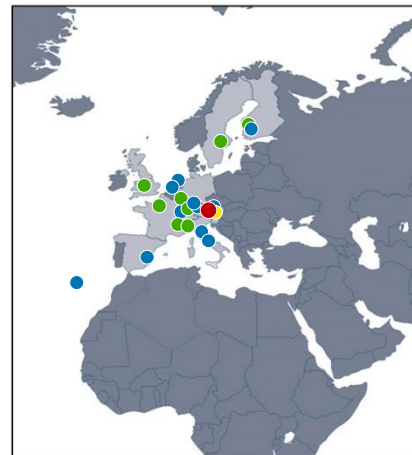
## In-house test, Austria / Philippines

# Global network – design, manufacturing, support

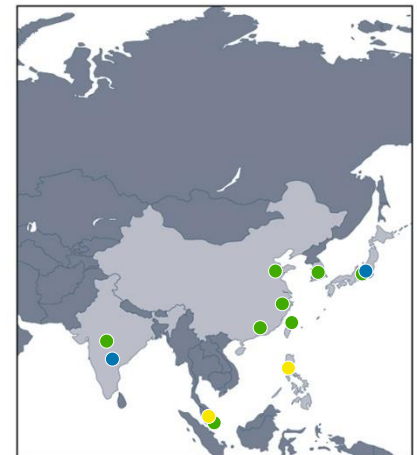
- Headquarters
- Design centers
- Manufacturing/Test
- Sales/customer support locations



Americas



Europe



Asia

- **20 design centers**  
Austria, Switzerland (2), Italy (2), Spain, Germany (4), Belgium, UK (2), Netherlands, Portugal, Finland, USA (2), India, Japan
- **Manufacturing**  
Austria, Singapore
- **High volume test center**  
Philippines





## Financial results

# Key figures

EURm

(IAS)		2016	2015	Q4 2016	Q4 2015
<b>Total revenues</b>		549.9 - 11.7%	623.1	133.6 - 9.2%	147.2
<b>Gross margin</b>	adjusted <sup>1)</sup> IFRS reported	55% 52%	56% 54%	52% 49%	57% 55%
<b>Result from operations (EBIT)</b>	adjusted <sup>1)</sup> IFRS reported	97.1 93.3	165.5 147.3	16.4 7.1	35.0 29.3
<b>Net result</b>		102.9 - 30.8%	148.7	13.7 - 55.2%	30.6
<b>EPS (basic/diluted)</b>	CHF EUR	1.67 / 1.62 1.53 / 1.48	2.30 / 2.21 2.16 / 2.08	0.22 / 0.22 0.21 / 0.20	0.48 / 0.46 0.44 / 0.43

<sup>1)</sup> Excluding acquisition-related and share-based compensation costs

<sup>2)</sup> Earnings per share in CHF were converted using the average currency exchange rate for the respective periods



# FINANCIAL RESULTS

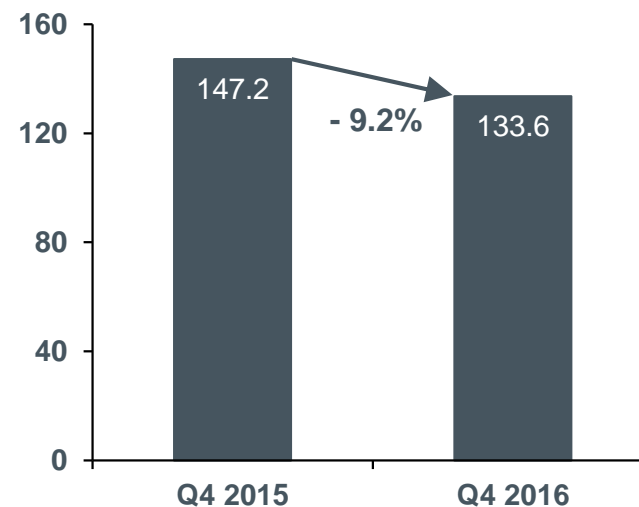
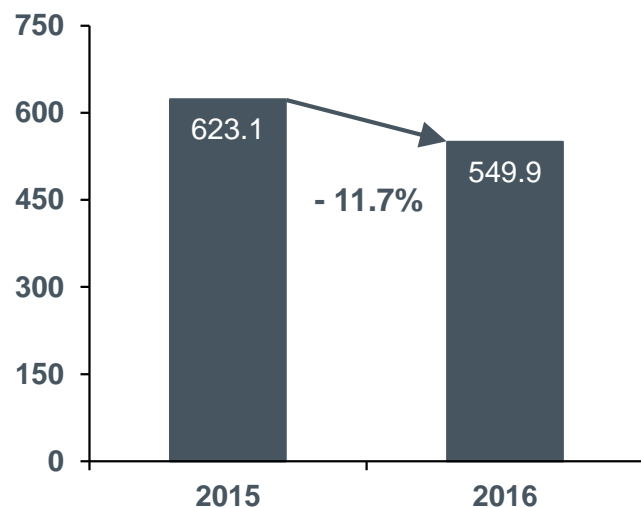
P&L

BALANCE SHEET

CASH FLOW

# Total revenues

EURm

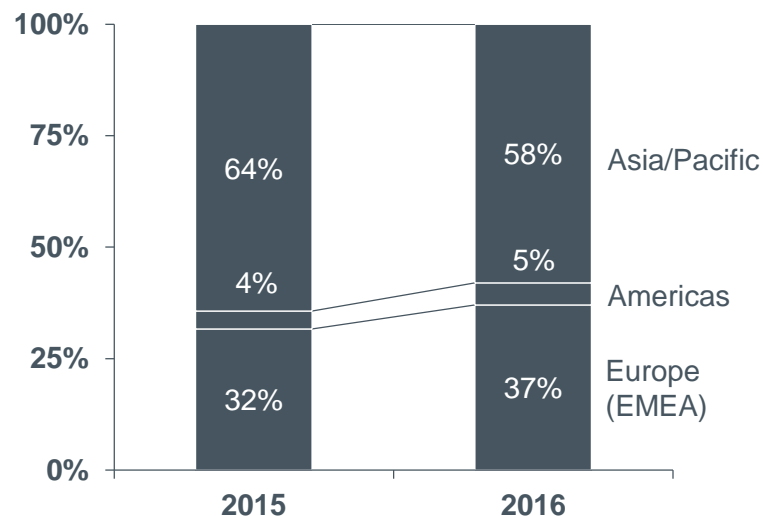


- Revenue development reflects weakness in consumer in H1 and year of transition
- On constant currency basis, revenues 2016 also 12% lower year-on-year

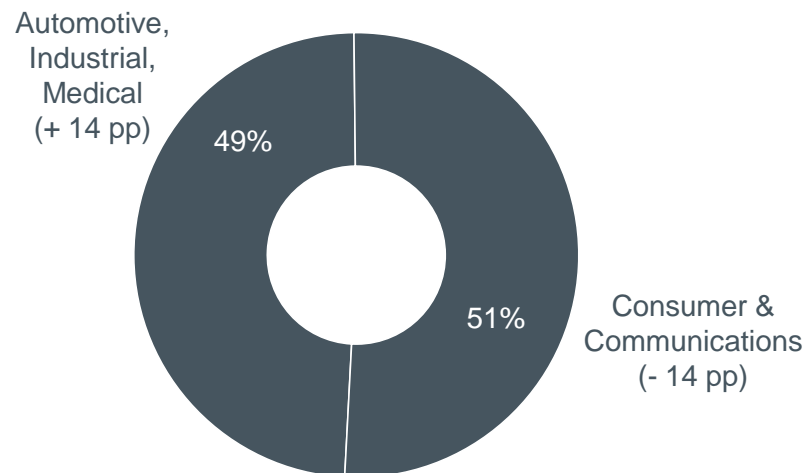
# Revenue distribution

% of revenues

## Total revenues by region 2015/2016



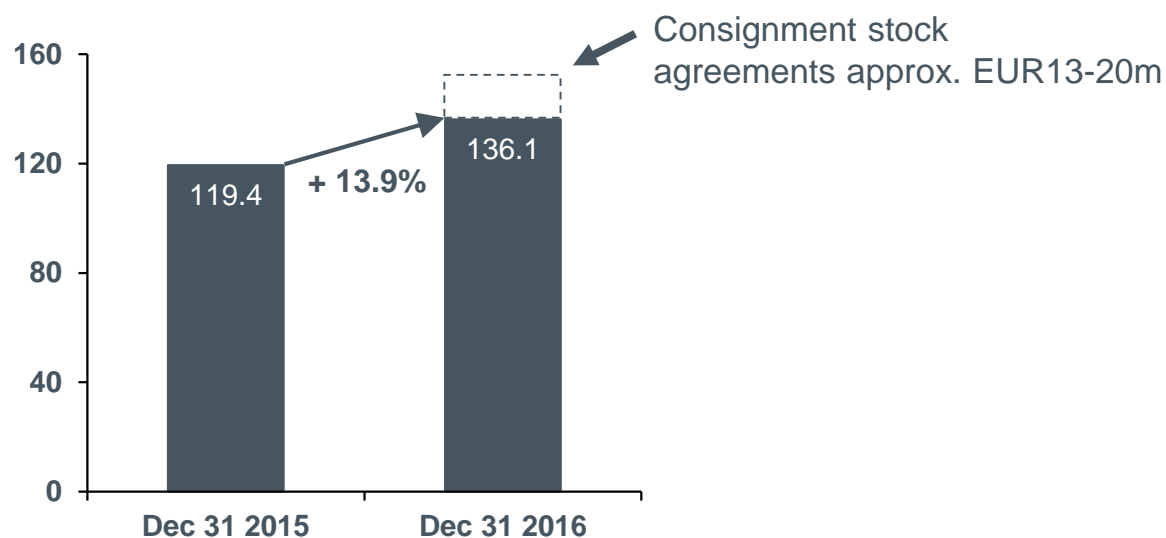
## Total revenues by market 2016



- Increase of European revenues due to higher shares of Automotive, Industrial, Medical
- Consumer & Communications share of revenues down from 2015 due to weaker market development

# Total backlog

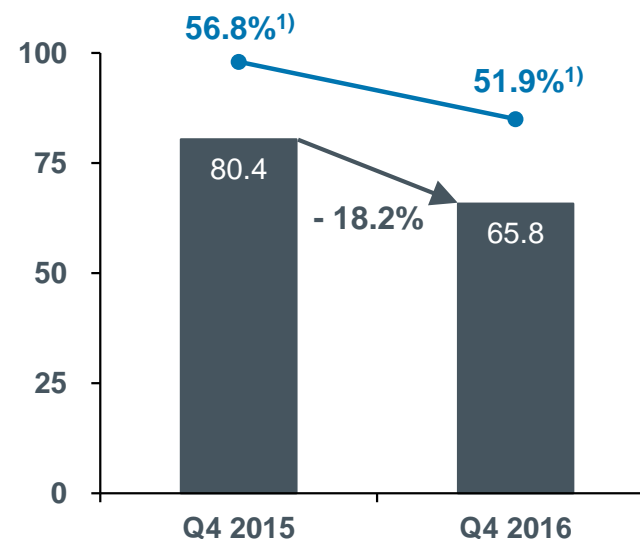
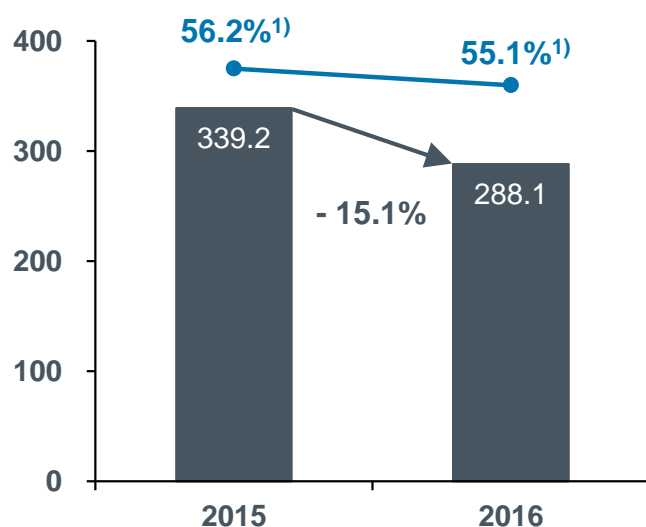
EURm



- Backlog comparison reflects expected positive start into 2017
- Total backlog + designated consignment stock agreements = total customer-committed revenue pipeline

# Gross profit / gross profit margin

EURm, % of revenues, gross profit including acquisition-related and share based compensation costs

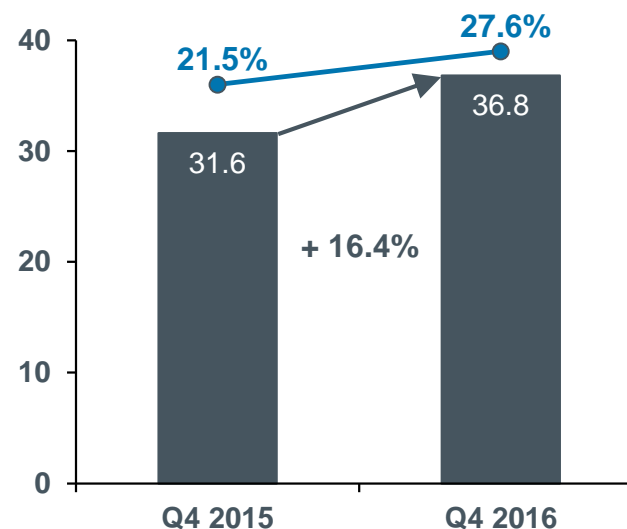
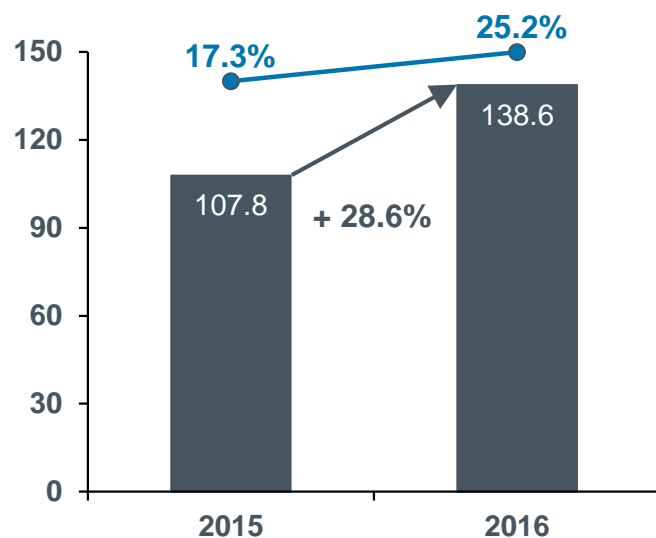


1) Gross profit margin excluding acquisition-related and share based compensation costs

- Gross profit margin performance due to product mix, full utilization, certain negative yield effects
- Gross profit margin including acquisition-related amortization 2016: 52.4%, Q4 2016: 49.2%

# R&D expenses

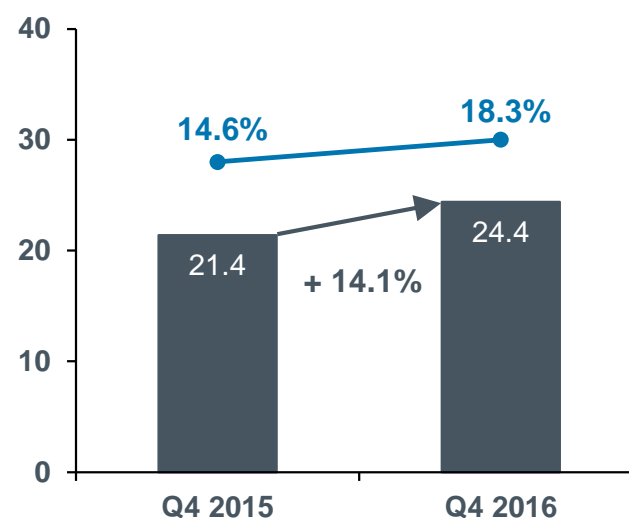
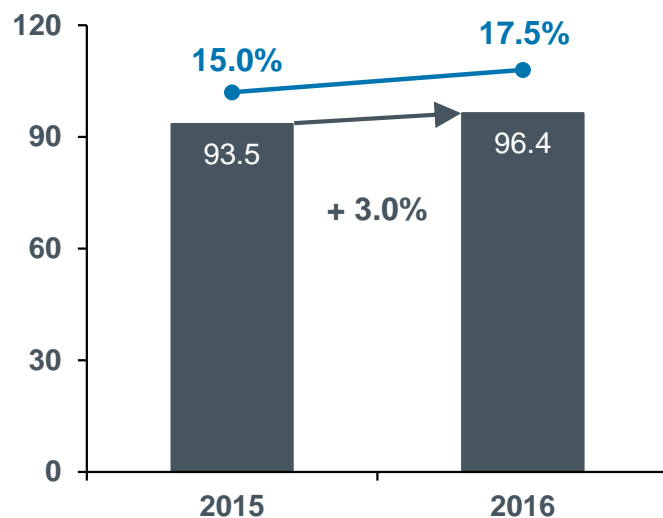
EURm, % of revenues



- R&D investments continuing on high level to support multi-year pipeline, also reflects acquisitions
- Q4 comparison includes base effect from acquisitions

# SG&A expenses

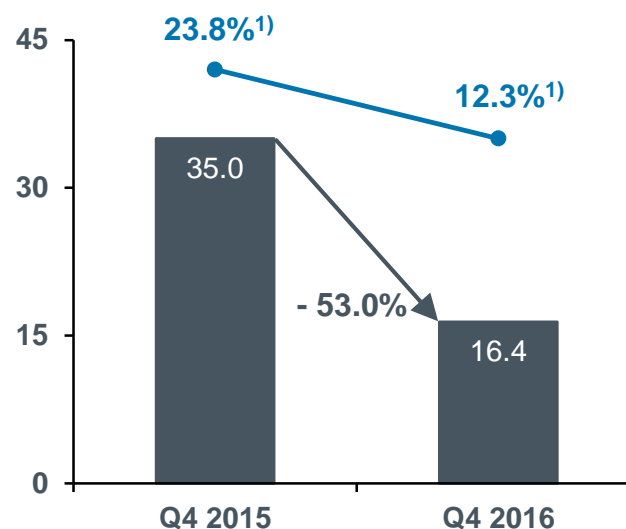
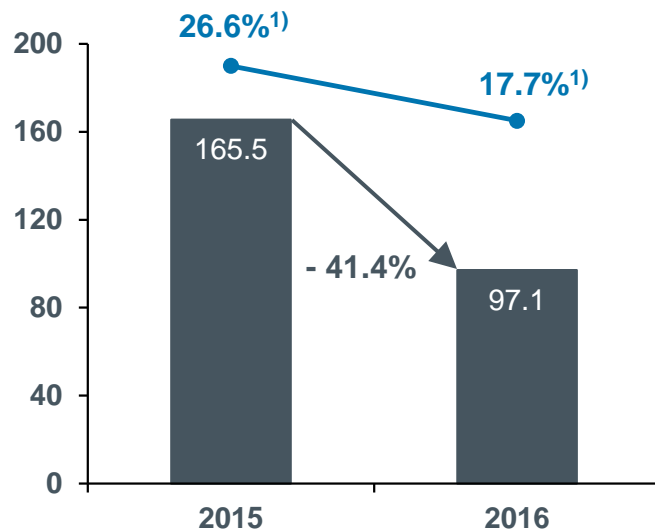
EURm, % of revenues



- SG&A expenses include selective sales/marketing investments, reflect acquisitions
- Successful SG&A expense management through 2016

# Result from operations (EBIT)

EURm, % of revenues, EBIT excluding acquisition-related and share based compensation costs



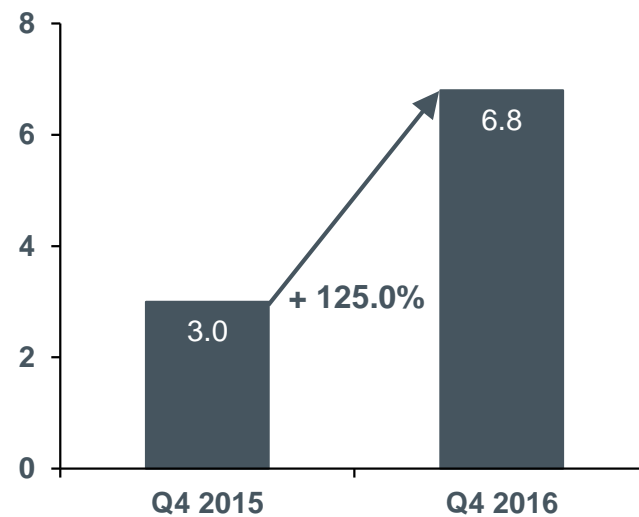
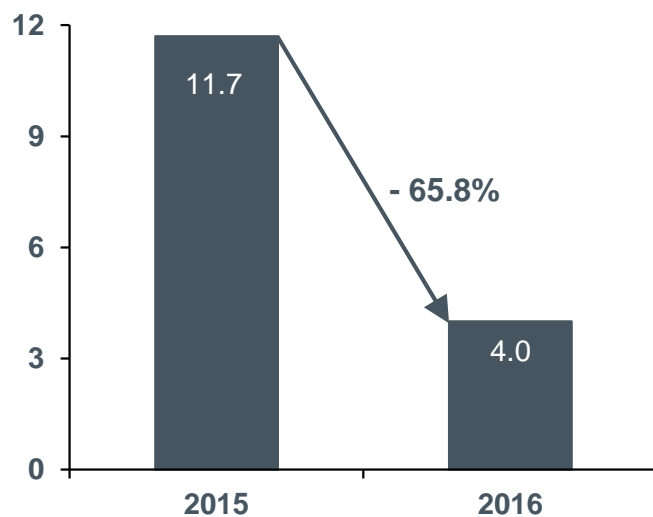
<sup>1)</sup> EBIT margin excluding acquisition-related and share based compensation costs

- EBIT includes effect from divestiture of wireless business (EUR 30.2m)
- EBIT (EBIT margin) reported: 2016 EUR 93.3m (17.0%), Q4 2016 EUR 7.1m (5.3%)



# Net financial result

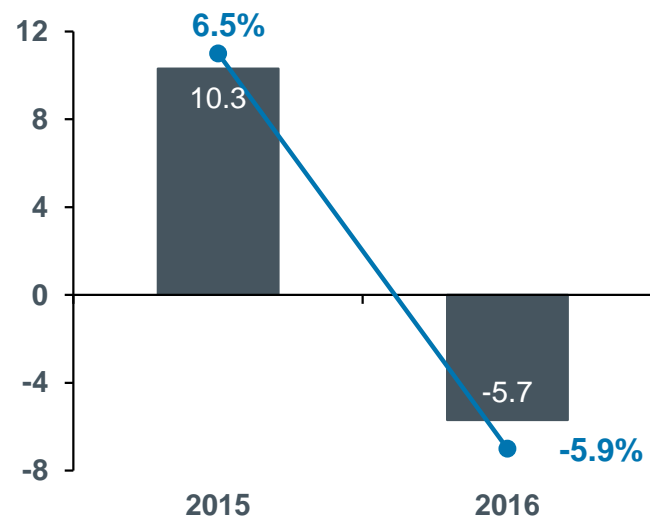
EURm



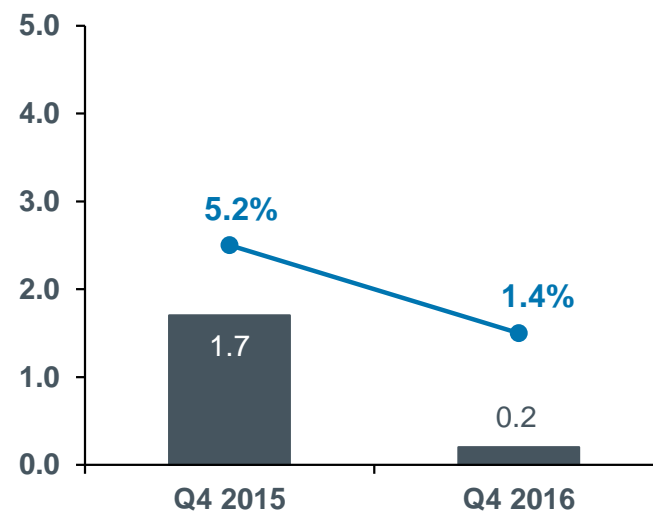
- 2016 financial result swing mainly driven by exchange rate volatility and revaluation effects

# Tax expense

EURm, tax rate: % of result before tax (PBT)



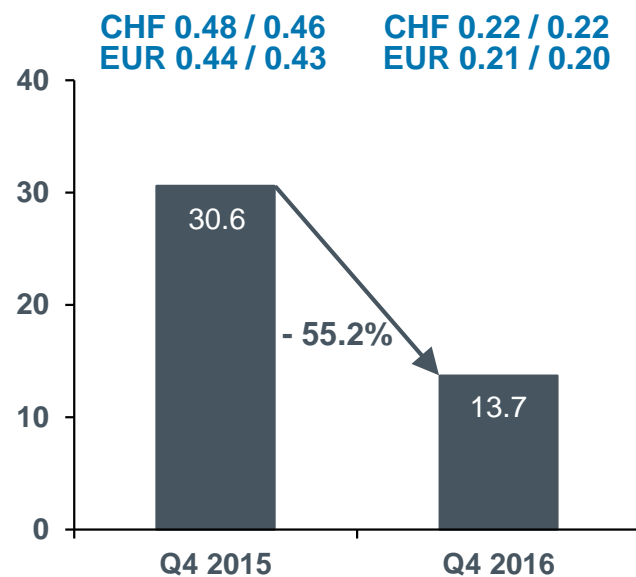
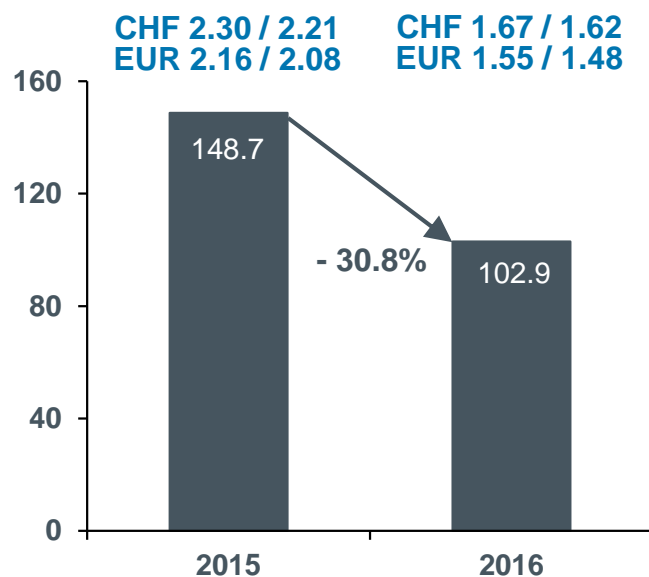
Tax rate



- Negative tax expense 2016 driven by unwinding of historic tax structure and historic tax losses
- Cash tax rate expected to increase gradually

# Net income / earnings per share

EURm, earnings per share (EPS) in CHF and EUR (basic/diluted)



- 2016 net income decline reflects decrease in operating profitability
- EPS base (basic/diluted) 2016 67,241,926/69,373,197 shares, Q4 2016 66,245,957/67,812,290 shares

# FINANCIAL RESULTS

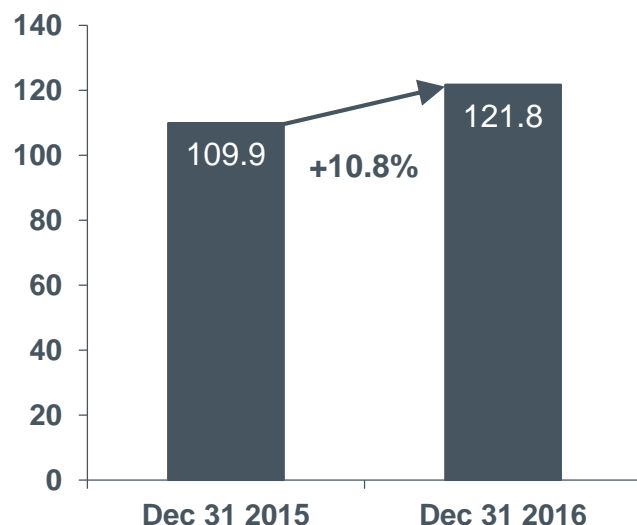
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BALANCE SHEET

CASH FLOW

# Working capital

EURm



## Working capital at year-end

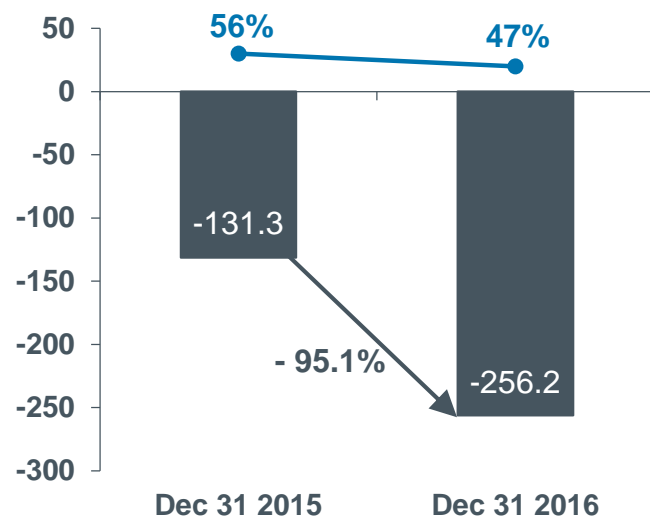
	2016	2015
Trade receivables	97.2	88.7
+ Inventories	92.9	79.8
- Trade liabilities	68.2	58.6
<b>Working capital</b>	<b>121.8</b>	<b>109.9</b>
in % of revenues	22%	18%

- Solid working capital management against lower revenues
- Increase in inventories and receivables due to capacity expansion (higher WIP) and higher DSO

# Net cash, cash and short term investments

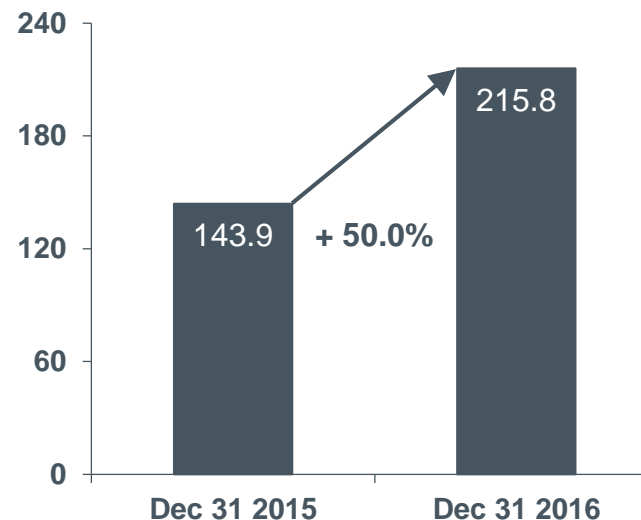
EURm, % of total liabilities

## Net cash, equity ratio



Equity ratio

## Cash and short-term investments



- Net debt position widened 2016 due to acquisitions and investments into equipment
- Increase in cash and cash equivalents reflects issuance of promissory note

# FINANCIAL RESULTS

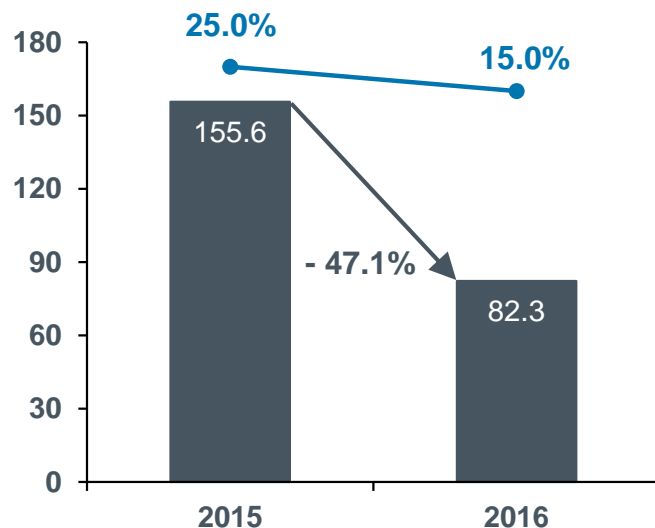
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BALANCE SHEET

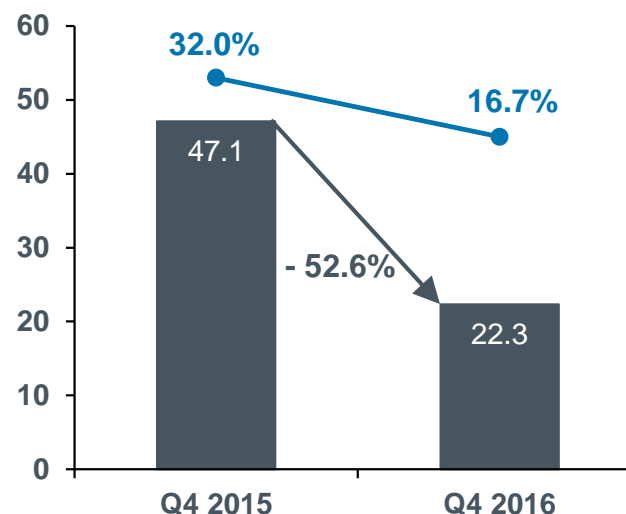
CASH FLOW

# Cash flow from operations

EURm, % of revenues



Cash flow as % of revenues

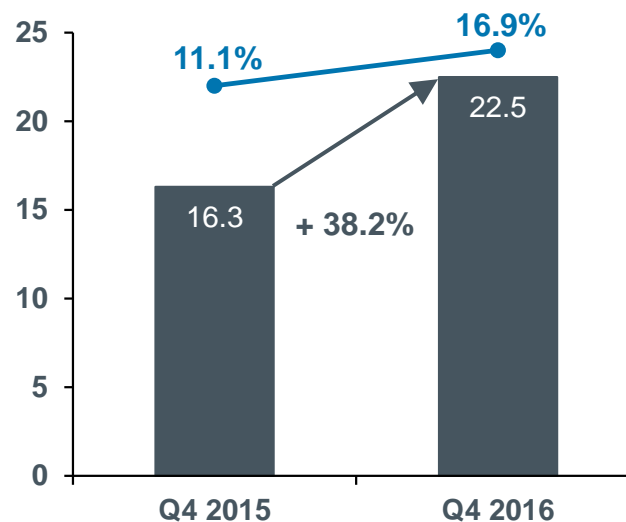
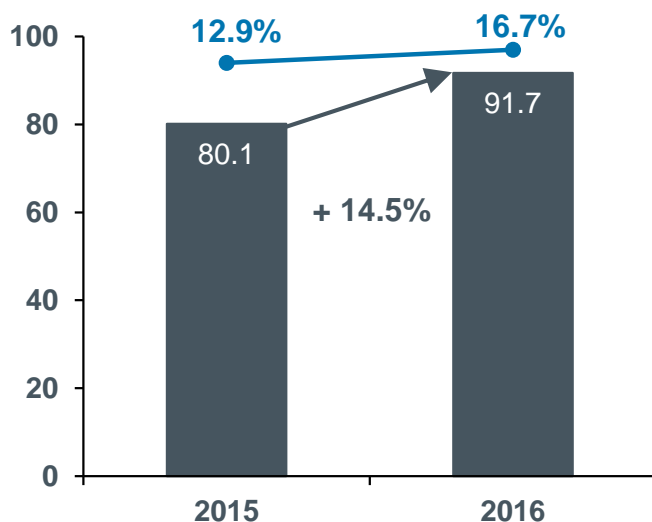


- Slower cash generation driven by lower profitability and results
- Level of cash flow similar to EBIT margins



# Capital expenditures

EURm, % of revenues - Acquisition of intangibles, property, plant and equipment



Capital expenditures as % of revenues

- 2016 capital expenditures driven by investments into equipment to support expected growth
- Q4 2016 spending includes specialty equipment for next generation light sensors

# Dividend policy and proposal

## Dividend policy

- Distribution of 25% of net earnings

## Dividend proposal for 2016

- EUR 0.30 per share outstanding (2015: EUR 0.51)

## Dividend timetable

- AGM 9 June 2017
- Payment date 16 June 2017



## Company highlights and outlook

# Outlook

<b>Mid-term goals reconfirmed</b>	<ul style="list-style-type: none"> <li>• 30% revenue growth CAGR for next three years</li> <li>• 30% EBIT margin (adjusted) from 2019 onwards</li> </ul>
<b>2017 outlook</b>	<ul style="list-style-type: none"> <li>• Strong revenue growth potential including expected growth from ams' existing businesses as well as from Heptagon business</li> <li>• Based on currently available forecasts, full earn-out for Heptagon transaction expected to be realized relating to fully consolidated 2017 revenues of the Heptagon business of around USD 300m</li> </ul>
<b>Q1 2017 outlook</b>	<ul style="list-style-type: none"> <li>• Expected revenue of EUR 141-148 million including consolidation of Heptagon business, based on USD/EUR of 1.07</li> <li>• Expected adjusted operating (EBIT) margin around break even due to consolidation effects from known negative operating profitability of Heptagon (excl. acquisition-related and share-based compensation costs)</li> <li>• Expected flattish revenue development excluding Heptagon business, better than typical first quarter seasonality</li> <li>• Expected adjusted EBIT margin excluding Heptagon business comparable to Q4 2016</li> </ul>

## ams highlights

-  Global leadership in sensor solutions
-  Focus on growth and emerging markets
-  Innovation driver in next generation sensing
-  Growth partnerships with leading OEMs
-  Scalable manufacturing
-  Strong model for revenue and earnings growth



ams

Sensing **is life.**



## Appendix



# End markets – Consumer & Communications

Sensor solutions and sensor interfaces



## Mobile device optical sensor applications

- Clear #1 in mobile optical sensing
- Display management (color ALS, proximity)
- True Color ambient light identification and display optimization
- 3D sensing opportunities
- New spectral sensing-based applications

**Largest mid-term  
revenue growth  
opportunities**

## Mobile device audio sensing

- High quality ANC (Active Noise Cancellation) expected to move “into the box”
- Audio sensor fusion potential for other sensor modalities

## Health data acquisition

- Focus on quality data for wearables and new device types
- Spectral sensing enables high value features

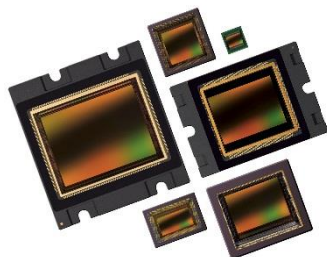
## Environmental sensing

- Roadmap for emerging gas sensing applications



# End markets – Industrial

Sensor solutions and sensor interfaces



## Industrial automation, control, and sensing

- Motion control, drives and electrical motors
- Industrial sensors including time-based sensors
- Integrated magnetic position encoders

## Building automation, infrastructure and lighting

- HVAC, safety, sensor networking and bus systems
- Highest accuracy gas and water flow metering
- Smart LED lighting (lighting management, daylight harvesting)

## High-performance CMOS image sensing

- Leading position in high-end imaging
- Global shutter technology for high speed, frame rate, dynamic range
- Upcoming Industrial IoT opportunities include spectral sensing fusion

## Environmental sensing

- CMOS monolithic relative humidity, pressure, temperature sensors
- Emerging spectral sensing (machinery, agriculture)

**Emerging markets for  
environmental/gas  
sensing, lighting and  
spectral sensing**

# End markets – Medical

Sensor solutions, sensors and sensor interfaces

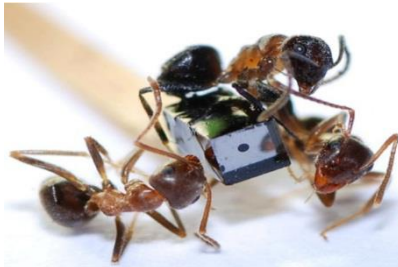


## Medical imaging: Leader in lowest noise sensing

- Computed tomography (CT)
- Digital X-ray
- Mammography

## Medical endoscopy applications

- NanEye  $<1\text{mm}^2$  camera modules for endoscope tips
- Growth traction given significantly higher image quality and robustness for improved diagnostics



## Personal health devices

- Heart rate monitors
- Diabetes management



## Spectral sensing applications

- Potential combination with NanEye modules for in-body diagnostics

**New market segments emerging in CT and miniature cameras**

# End markets – Automotive

Sensor solutions, sensors and sensor interfaces



## Position sensing

- Pedal and throttle position
- Transmission (clutch, gear shift)
- Steering wheel angle and torque
- Brushless motor control applications

**Potential for broader presence across application areas**



## Safety, ADAS

- Advanced driver assistance/object detection LIDAR systems
- Next generation LIDAR supporting autonomous driving road map
- ESP (Electronic Stability Program), battery management

## Environmental sensing

- Air quality sensing
- Relative humidity and temperature sensing



## Automotive lighting

- New lighting applications (advanced cabin lighting)

# Profit and loss statement

EURm

(IFRS)	2016	2015	Q4 2016	Q4 2015
<b>Total revenues</b>	549.9	623.1	133.6	147.2
• Products	495.4	579.0	115.7	136.2
• Foundry	54.5	44.1	17.9	11.0
<b>Gross profit</b>	288.1	339.2	65.8	80.4
• Gross margin (adjusted <sup>1)</sup> )	55.1%	56.2%	51.9%	56.8%
• Gross margin (IFRS reported)	52.4%	54.4%	49.2%	54.6%
<b>Research and development</b>	- 138.6	- 107.8	- 36.8	- 31.6
<b>Selling, general and administrative</b>	- 96.4	- 93.5	- 24.4	- 21.4
<b>Other operating income/expenses</b>	40.1	9.3	2.6	1.9
<b>Result from operations (EBIT)</b>	93.3	147.3	7.1	29.3
• EBIT margin (adjusted <sup>1)</sup> )	17.7%	26.6%	12.3%	23.8%
• EBIT margin (IFRS reported)	17.0%	23.6%	5.3%	19.9%
<b>Net financing costs</b>	4.0	11.7	6.8	3.0
<b>Result before tax</b>	97.2	158.9	13.9	32.3
<b>Income tax result</b>	5.7	- 10.3	- 0.2	- 1.7
<b>Net result</b>	102.9	148.7	13.7	30.6

<sup>1)</sup> excl. acquisition-related and share-based compensation costs

# Balance sheet

EURm

Assets (IFRS)	Dec 31, 2016	Dec 31, 2015	Liabilities and equity	Dec 31, 2016	Dec 31, 2015
Cash and short term invest.	215.8	143.9	Interest-bearing debt	108.0	75.0
Trade receivables	97.2	88.7	Trade liabilities	68.2	58.6
Inventories	92.9	79.8	Tax liabilities	36.8	46.3
Other current assets	33.4	28.7	Provisions	20.1	34.7
			Other liabilities	31.4	31.0
<b>Total current assets</b>	<b>439.3</b>	<b>341.0</b>	<b>Total current liabilities</b>	<b>264.5</b>	<b>245.6</b>
Fixed assets	319.3	256.6	Interest-bearing debt	364.1	200.2
Intangible assets	603.4	582.0	Employee benefits	37.0	32.4
Investments in associates	2.3	1.9	Provisions	0.0	0.0
Deferred tax asset	35.4	34.8	Deferred tax liabilities	54.0	57.9
Other non-current assets	23.4	7.0	Other liabilities	36.0	6.0
<b>Total non-current assets</b>	<b>983.7</b>	<b>882.3</b>	<b>Total non-current liabilities</b>	<b>490.9</b>	<b>296.6</b>
			<b>Shareholders' equity</b>	<b>667.6</b>	<b>681.2</b>
<b>Total assets</b>	<b>1,423.0</b>	<b>1,223.4</b>	<b>Total liabil. and equity</b>	<b>1,423.0</b>	<b>1,223.4</b>

# Cash flow statement

EURm

(IAS)	2016	2015	Q4 2016	Q4 2015
Income before tax	97.2	158.9	13.9	32.3
Depreciation	62,3	47.9	16.0	12.9
Cash flow from operations	82,3	155.6	22.3	47.1
Capital expenditures	- 91.7	- 80.1	- 22.5	- 16.3
Cash flow from investing activities	- 71.0	- 287.2	- 24.1	- 211.9
Proceeds from borrowings	277.2	220.3	20.0	155.2
Repayment of borrowings	- 85.0	- 149.6	0.2	- 44.9
Dividends paid	- 34.6	- 22.8	0.0	0.0
Changes resulting from capital increase	0.0	0.8	0.0	0.0
Cash flow from financing activities	58.6	21.7	8.8	99.9
Change in cash and cash equivalents (incl. effects of changes in foreign exchange rates)	76.0	- 100.1	16.3	- 62.7
Cash and cash equivalents at end of period	179.6	103.6	179.6	103.6