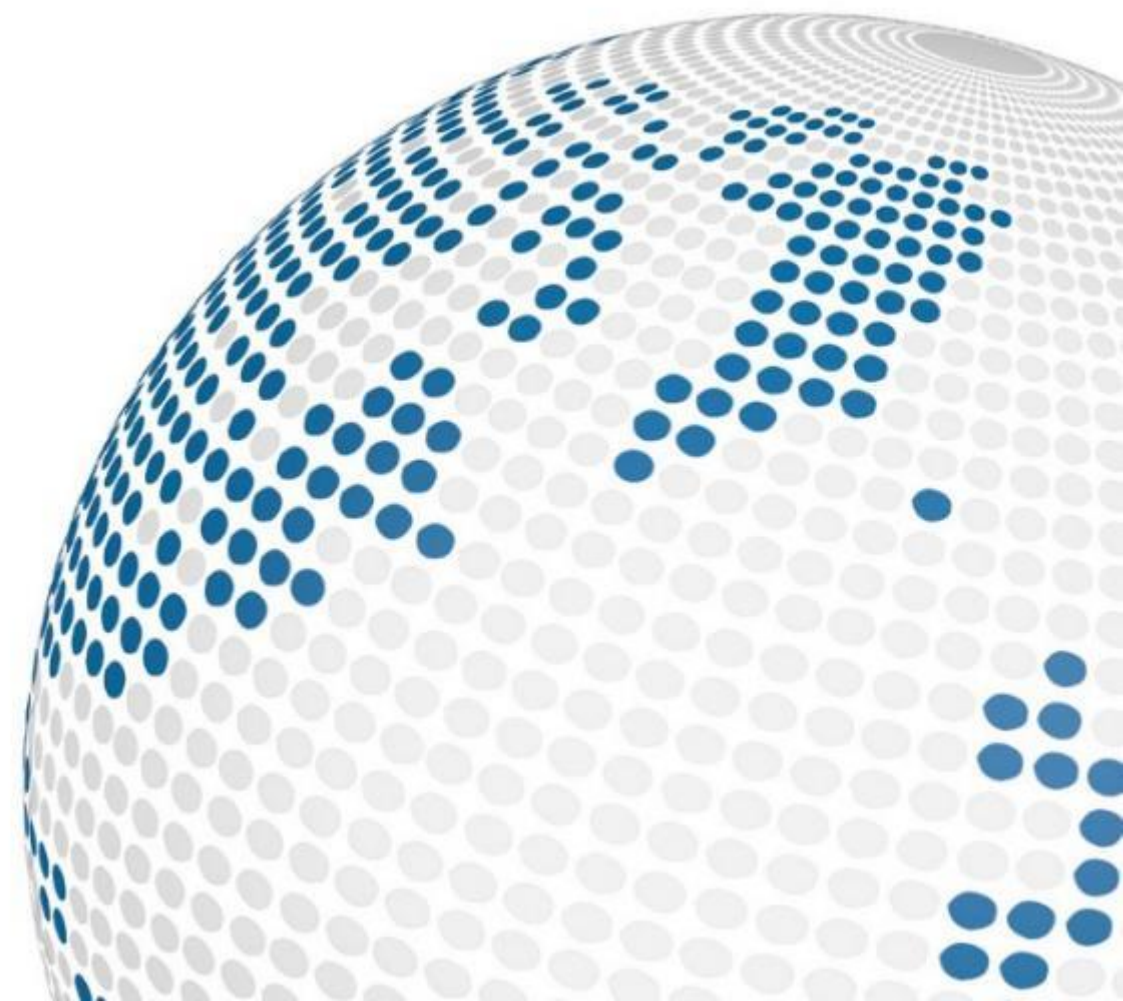# ams

First quarter results 2020

Alexander Everke, CEO

Michael Wachsler-Markowitsch, CFO

Moritz M. Gmeiner, Head of IR

April 2020

Legal disclaimer

These materials and information constitute neither an offer to sell nor a solicitation to buy securities according to the European Prospectus Regulation (EU) 2017/1129 or other applicable laws. These materials and information do not constitute or form a part of any offer or solicitation to purchase or subscribe for securities in the United States of America, Australia, Canada or Japan, or any other jurisdiction in which such offer or solicitation may be unlawful. The ams AG securities described herein have not been and will not be registered under the U.S. Securities Act of 1933, as amended (the "Securities Act") or under any securities laws of any state or other jurisdiction of the United States and may not be offered, sold, taken up, exercised, resold, renounced, transferred or delivered, directly or indirectly, within the United States except pursuant to an applicable exemption from, or in a transaction not subject to, the registration requirements of the Securities Act and in compliance with any applicable securities laws of any state or other jurisdiction of the United States.

These materials and information constitute neither an offer to sell nor a solicitation to buy securities and does not constitute a prospectus according to Articles 35 et seqq. of the Swiss Financial Services Act ("FinSA") or Articles 652a and 1156 of the Swiss Code of Obligations (as such articles were in effect immediately prior to the entry into effect of FinSA) or Article 27 et seqq. of the SIX Swiss Exchange Listing Rules.

The distribution of these materials and information may be restricted by law in certain jurisdictions, and persons into whose possession any document or other information referred to herein comes should inform themselves about and observe any such restriction. Copies of these materials and information may not be sent to countries or distributed or sent from countries, in which this is barred or prohibited by law. Any failure to comply with these restrictions may constitute a violation of the securities laws of any such jurisdiction.

In the United Kingdom, this document is only directed at (i) investment professionals falling within article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"), (ii) high net worth entities falling within article 49 of the Order or (iii) other persons to whom it may lawfully be communicated, (all such persons together being referred to as "relevant persons").

These materials and information may contain statements about ams and/or its subsidiaries (together "ams Group") or that are or may be "forward-looking statements". Forward-looking statements include, without limitation, statements that typically contain words such as "anticipate", "target", "expect", "estimate", "intend", "plan", "believe", "hope", "aims", "continue", "will", "may", "should", "would", "could", or other words of similar meaning. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. ams cautions you that forward-looking statements are not guarantees of the occurrence of such future events or of future performance and that in particular the actual results of operations, financial condition and liquidity, the development of the industry in which ams Group operates and the outcome or impact of the acquisition and related matters on ams Group may differ materially from those made in or suggested by the forward-looking statements contained in these materials and information. Any forward-looking statements speak only as at the date of these materials and information. Except as required by applicable law, ams does not undertake any obligation to update or revise publicly any forward-looking statement, whether as a result of new information, future events or otherwise.

ams at a glance

Sensing is life.

Sensing is life.

High performance sensor solutions for leading OEMs, focused on sensor-rich markets

Key figures		
2.086 Revenues 2019 USD bn	**32%** Revenue growth year-on-year	**8,000** Customers
8,500 Employees	**1,100** Engineers	**>3,000** patents

Our markets (FY 2019)

Consumer – 82% of revenues

Automotive, Industrial, Medical – 18% of revenues

Sensing enables life

Sensors – an integral part of the digital transformation

Infrastructure automation

Industrial IoT

Personal health

Smart consumer devices

Autonomous driving

Human/machine interface

Augmented reality

Smart home & building

ams strategic pillars (excl. OSRAM)

ams
Sensing is life.

Driving leadership in three sensing areas

Optical sensing

- 3D sensing (all architectures) incl. VCSEL illumination (front/world-facing)
- Light analysis/proximity
- Behind-OLED sensing
- Long distance 1D ToF
- Spectral and bio-sensing
- New optical technologies

Image sensing

- High performance imaging
- Global shutter sensors
- Medical imaging
- NIR sensing for 3D
- Micro cameras

Audio sensing

- ANC noise cancelling

Other lines

Position

Other sensing

- Position sensors (automotive/industrial)

Strategic rationale for OSRAM

1   **Creating a global leader in sensor solutions and photonics**

2   **Accelerates ams to win in new breakthrough optical solutions**

3   **Expedites diversification of revenue mix**

4   **Enhances manufacturing footprint with clear scale and cost advantages**
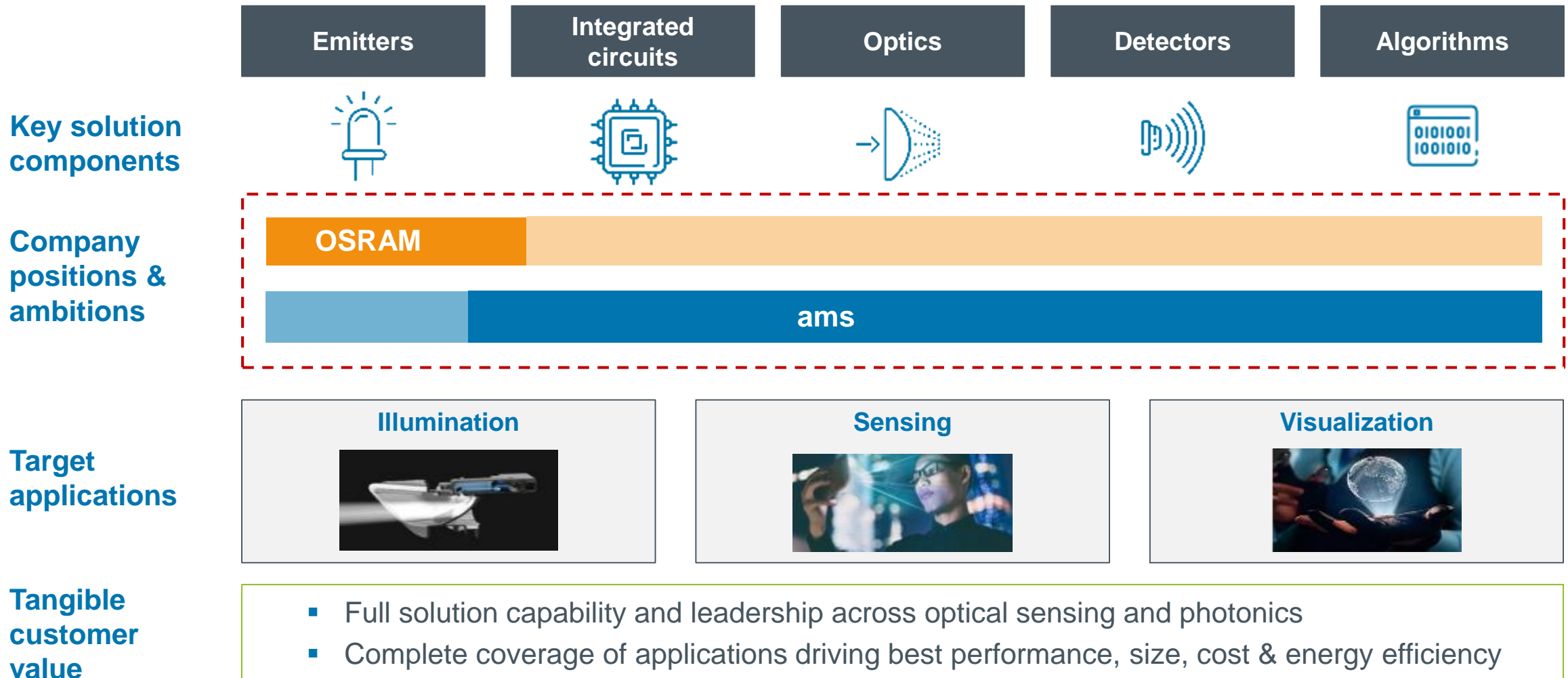
5   **Leverages complementary go-to-market strengths**
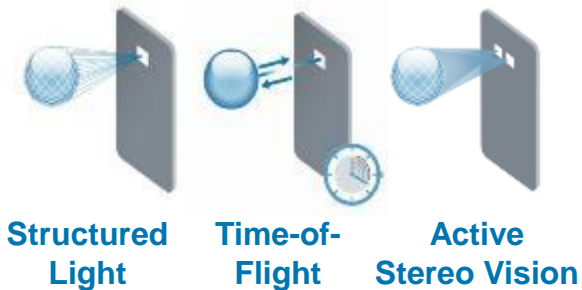
6   **Delivers significant synergies**

Global leader in sensor solutions and photonics

Strength across the full range of solution components in all major application markets

Emitters	Integrated circuits	Optics	Detectors	Algorithms

Key solution components

Company positions & ambitions

OSRAM

ams

Target applications

Illumination	Sensing	Visualization

Tangible customer value

- Full solution capability and leadership across optical sensing and photonics
- Complete coverage of applications driving best performance, size, cost & energy efficiency

3D sensing: leading across technologies

Structured Light **Time-of-Flight** **Active Stereo Vision**

Leading player across 3D sensing architectures

- Industry-leading portfolio of technologies, products and IP
  - Broad coverage of all 3D architectures
  - Highly differentiated VCSEL/VCSEL array illumination
  - Outstanding portfolio in hardware, software, algorithm IP
  - High QE near-infrared global shutter sensing via SmartSens
- Positioned for different and evolving customer needs: Structured light (SL), time-of-flight (iToF/dToF), active stereo vision (ASV)

Industry-leading solution expertise

- Leader in system capabilities for SL, iToF, dToF, ASV and front-facing/world-facing
- Strong in 3D illumination, VCSEL leadership, SmartSens NIR partnership driving solutions

Key 3D sensing supplier in Consumer, Automotive LIDAR wins, early Industrial

- High volume 3D for top consumer OEMs
- Leading Android position, fast growth in Android world-facing iToF illumination, behind-OLED 3D development in ASV, ASV full solution demos, dToF development
- Automotive momentum: solid-state 3D + additional LIDAR wins, in-cabin 3D win
- Industrial early moves: household win, growing interest in secure access

Strong across smartphone market, leading expertise in SL/iToF/dToF/ASV

3D sensing: ASV system solution, BOLED 3D

ASV full ams system solution: leveraging 3D expertise

- Integrating SmartSens ams IP NIR sensor expands 3D offering for solution development

- Full 3D system capability based on market-leading 3D portfolio and expertise

- Front-facing ASV system: from VCSEL to biometrics
  - ams projector illumination (VCSEL, driver, optics, module)
  - NIR sensor based on ams IP, sold by ams
  - ams software (depth mapping, biometrics)

Developing BOLED 3D, ASV demos in industrial access + driver recognition

- Invisible 3D BOLED – moving 3D behind display:
  high security, high convenience, best design, potential for ASV or SL architectures,
  ASV-based full system in development

- Access / door lock:
  ASV demo system, high performance face authentication, 1.5m distance, full ams solution

- Automotive driver recognition/monitoring:
  ASV demo system, miniaturized integration in dashboard, barely visible, full ams solution

Leading 3D portfolio incl. NIR sensing enables full 3D system solutions

3D sensing: High quality NIR sensing, LD 1D ToF

**High performance NIR sensors: SmartSens partnership**

- Near Infrared (NIR) image sensing partnership with image sensor vendor SmartSens

- Ultra-sensitive ams NIR image sensors with state-of-the-art quantum efficiency (QE) of up to 40%

- Incorporating ams illumination expertise and core IP in global shutter technology

- Accelerating implementation of full ASV system solutions

- Full ASV systems for consumer 3D incl. BOLED 3D, automotive 2D/3D in-cabin sensing, emerging industrial applications (household devices, access)

Long distance 1D ToF solution: high quality distance measurement, first design win

- Compact high performance VCSEL ToF solution for distance measurement/object detection

- Accurate measurement up to around 2.5 meters

- First Android win for laser detect autofocus (LDAF) for smartphone world-facing camera, to be launched 2020

NIR sensing with ams IP drives full ASV solutions

3D sensing: dToF solution development, VCSELs
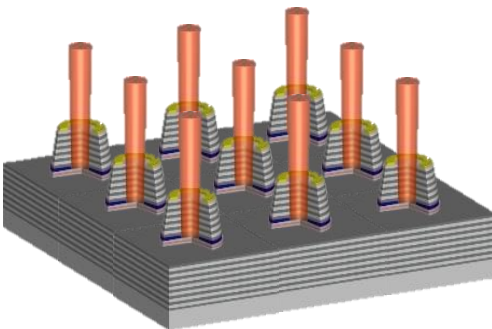
**dToF 3D: leading know-how in upcoming 3D technology**

- dToF offers outstanding 3D performance for difficult lighting conditions (high brightness) and longer distances
- Highly attractive but technically demanding
- dToF roadmap-based solution development
  - portfolio of illumination, optics, SPAD, related IC
  - targeting high performance + long distance
  - strong ams IP, high value proposition
- Solution capability based on wide-ranging 3D portfolio and system design expertise
- OEM interest in dToF strongly increasing

Superior VCSEL technology: high differentiation, driving 3D wins and system offering

- Leading portfolio for illumination in all 3D architectures:
  iToF/dToF/SL illumination, ASV/SL dot projection, 1D ToF distance + proximity
- Best-in-class high power VCSELs/high count VCSEL arrays:
  Smallest pitch (high resolution, lower system cost), leading power efficiency (up to >60% (lab) vs. typical 45-50% quantum efficiency), best beam quality (very narrow beam divergence), true high power (from mW to W to 100+W)
- External supply chain supports high volumes, ramp-up of internal line started

> **dToF development for longer distance 3D technology**

3D sensing: Automotive 3D LIDAR / in-cabin

Best of non-scanning/scanning
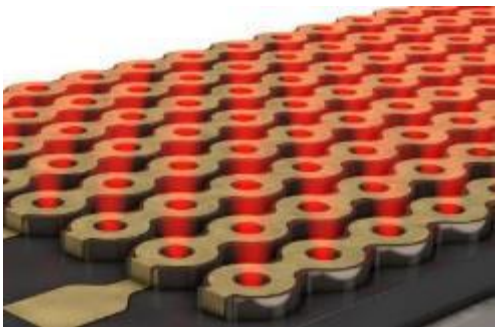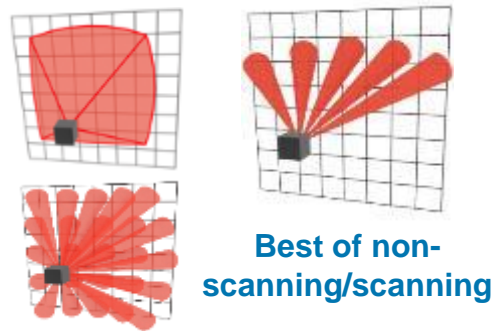
3D LIDAR: large scale solid-state LIDAR win + additional wins

- Major solid-state LIDAR illumination win with Tier 1 supplier ZF + technology partner IBEO

- High performance true solid-state scanning: combining advantages of non-scanning/flash + mechanical/MEMS scanning

- Line-by-line addressable high power high count VCSEL array: system-level advantages across scanning architectures

- Illumination systems with VCSEL array for multiple LIDAR architectures (true solid-state, mechanical scan, flash), some including automotive eye-safety VCSEL driver

- LIDAR illumination wins with separate Tier 1 suppliers in different geographies

In-cabin optical 3D/2D sensing: sizeable emerging market, strong traction, first win

- Identified applications: driver monitoring (drowsiness, distraction), driver interaction (gestures), occupant monitoring (airbag management, rear seat)

- Very good market traction given solution capability and automotive expertise

- Full ams 3D driver monitoring system demo for in-dashboard integration

- First 3D ToF illumination design-win at Tier 1 supplier

Automotive 3D offers major opportunities, market traction in in-cabin sensing

Optical sensing

A worldwide leader in light sensing solutions

- Leading in optical sensing:
  sensors, illumination solutions, high performance optical systems
- High quality optical sensing at top consumer OEMs
- Driving innovation in optical technologies
- Upcoming growth markets in Automotive + Industrial

Leadership in 3D and optical sensing for consumer and non-consumer markets

Broad portfolio: 3D sensing incl. VCSEL, display management/proximity, BOLED

- 3D sensing: leading portfolio + system expertise, all technologies, major consumer OEMs
- High performance VCSELs for 3D/optical sensing: strong in consumer, automotive expanding
- Innovative behind-OLED light/prox sensing: fast adoption, enabling 3D BOLED (development)
- Display management ALS/proximity, ultra-small proximity for wireless earbuds, camera AWB

Technology leadership for new markets and applications

- Biosensing: high quality blood pressure + health data measurement
- Spectral sensing: bio/medical sample analysis, Covid-related application with promising evaluation of fast high-quality point-of-care readout for lateral flow tests (LFT)

Optical sensing: Behind-OLED – ongoing adoption

Display management innovation:
Behind-OLED (BOLED) light and proximity sensing

- Invisible high quality optical sensing behind OLED displays

- Complex industry-leading sensing technology
  - very low light levels passing through OLED
    (approx. 4% of surface light)
  - proximity lighting emitted through display

- Enables industry trend for maximum screen-to-body ratio
  and bezel-less phone designs

- Integrated sensor solution, adoption ongoing in 2020:
  - fast penetration of leading smartphone OEMs and major platforms at higher content
  - marketing feature for high end smartphone displays

- Multi-generation roadmap driving performance/sensitivity

- Basis for 3D BOLED solution: ASV BOLED system in development

Adoption continues: high volumes for major OEMs and multiple platforms

Optical sensing: Spectral sensing AWB

Camera management innovation:
High accuracy auto white balancing (AWB)

- Automatic white-point balancing sensor for smartphone cameras

- Correct white-point balancing
  - key photographic function to realize best picture quality
  - compensate image colors for distorting effects of ambient light environment

- Integrated sensor solution based on lower resolution spectral sensing: 11-channel spectrum analysis of light environment and light source mix

- Extremely accurate AWB approaches professional grade

- Unparalleled image quality even in high color contrast scenes, vivid natural colors

- Combined with ams flicker-detection sensor allowing to eliminate artificial light flicker

- Volume shipping into recently launched major high-end smartphone platform, driving higher DXOMARK camera ranking

AWB performance pushes camera picture quality; shipping into major platform

Image sensing

Leading in advanced image sensing for Industrial + Medical

- **Industrial** – A leading vendor in global shutter technology for advanced industrial applications
- High value global shutter CMOS imaging for high speed machine vision, inspection, factory automation
- **Medical** – Global leader in medical imaging sensor solutions
- High performance cost-optimized systems for computed tomography (CT) and digital X-ray: clearer images at lower radiation doses for improved diagnostics
- Covid clinical CT diagnostics help medical imaging demand
- NanEye micro cameras: versatile solutions ($\leq 1mm^2$), leading in next gen medical endoscopy

High performance high QE NIR image sensing:
driving 3D system offering, promising power savings in mobile 3D systems

- Ultra-sensitive NIR sensors, state-of-the art quantum efficiency (QE) of up to 40%
- ams global shutter IP + application expertise for faster time-to-market, SmartSens partnership
- Integrating NIR sensors into 3D offering creates full ams systems
- 3D ASV full system solution demos: Automotive (driver recognition), Industrial (access)
- Enabling ASV 3D BOLED development

> **Leading in global shutter and Medical Imaging; Covid diagnostics help CT demand**

Audio sensing

ANC (active noise cancellation)

- Best-in-class high performance noise reduction (>40dB)

- Leading vendor, broad portfolio for wired/wireless accessories
  - significantly better audio experience
  - very low power, very small form factor

- Augmented hearing: selective noise cancelling by-pass, e.g. for speech

- Innovative solution for high quality digital ANC in loose-fitting true wireless earbuds:
  - not requiring plug-in-type earpieces, more comfortable wear
  - consumer OEM design ongoing

MEMS microphone IC business divested in line with sensor solutions focus

Hybrid volume manufacturing model

Internal: Differentiated manufacturing
Outsourced/external: Standard process manufacturing

Internal front-end wafer manufacturing, Austria
- 8" CMOS/specialty analog to 180nm, 190+k wafers p.a.
- Optical filter production

Internal optical manufacturing/backend + VCSEL manufacturing, Singapore
- Leading in high-performance optical system technologies
- Advanced optical assembly/backend, optical component production
- Significantly improved manufacturing efficiency with continuing benefits
- Internal VCSEL capacity: 6" 2,000 wspm line, front-end ramp started

External manufacturing partnerships for scalability and flexibility
- High volume wafer suppliers (TSMC, UMC), standard and semi-custom packaging
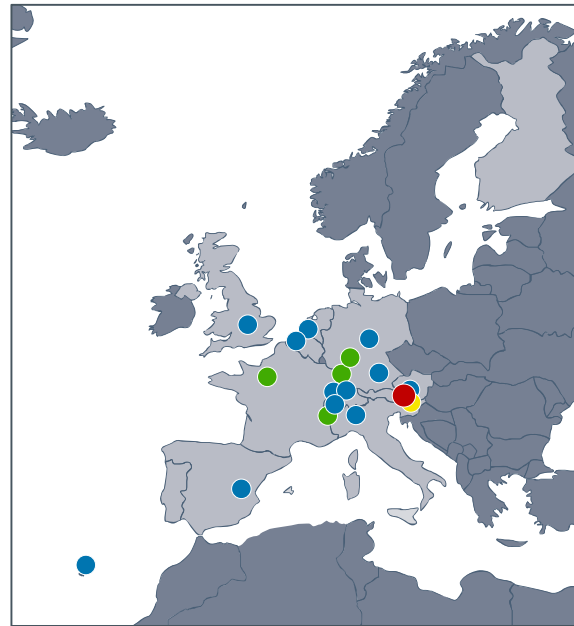- Outsourced VCSEL supply chain: capacity partners, serving different VCSEL needs

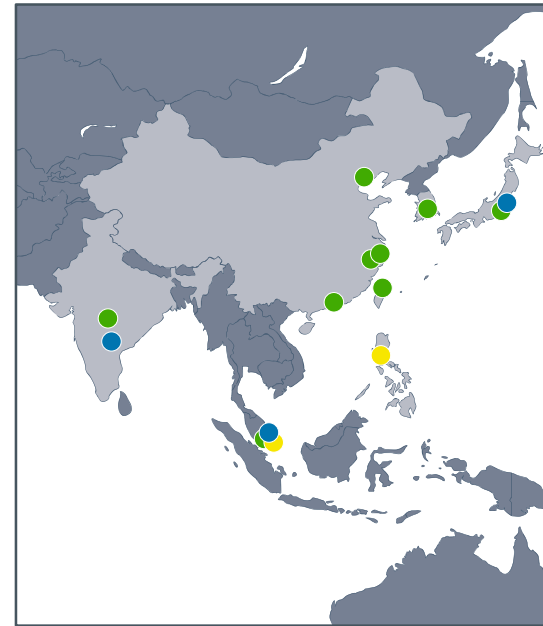**In-house test, Philippines/Singapore/Austria**

Manufacturing secured to support customer needs

Global network
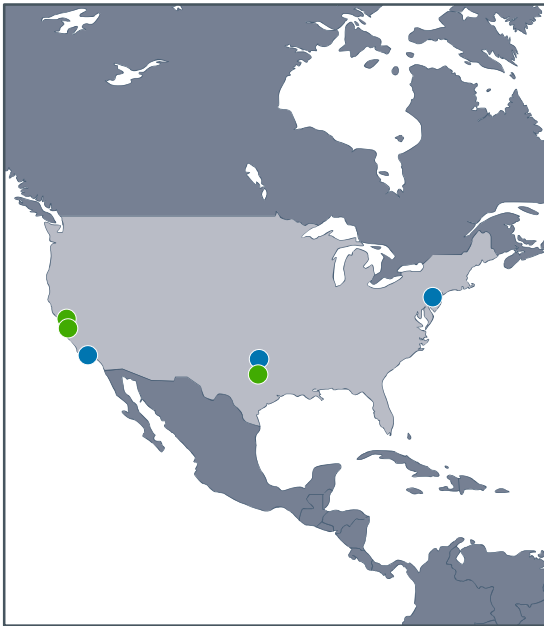
Americas

Europe

Asia

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

- **18 design centers**
  Austria, Belgium, Germany (2), Italy, India, Japan, Netherlands, Portugal, Singapore, Spain, Switzerland (3), UK, USA (3)
- **Manufacturing locations**
  Austria, Singapore
- **Test center**
  Philippines, Singapore, Austria

Key figures
USDm

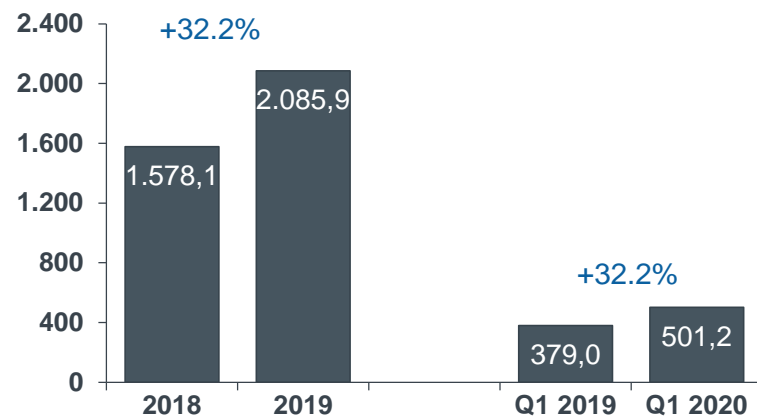|		**2019**	**2018**	**Q1 2020**	**Q1 2019**
Total revenues		2,085.9 +32%	1,578.1	501.2 +32%	379.0
Gross margin	(adjusted)[1]	41%	32%	39%	32%
	(IFRS reported)	38%	27%	37%	29%
Result from operations (EBIT)	(adjusted)[1]	433.4	141.2	101.0	22.8
	(IFRS reported)	363.7	14.3	59.8	-4.3
EBIT margin	(adjusted)[1]	21%	9%	20%	6%
	(IFRS reported)	17%	1%	12%	-1%
Net result	(IFRS reported)	331.6 +2,715%	11.8	-15.7 -79%	-9.2
EPS (basic/diluted)	(IFRS reported) CHF[2]	4.15 / 4.05	1.34 / 0.72	-0.19 / -0.04	-0.12 / -0.12
	USD[2]	4.13 / 4.03	1.26 / 0.68	-0.20 / -0.04	-0.11 / -0.11

[1] Excl. acquisition-related and share-based compensation costs
[2] Earnings per share in CHF were converted using the average currency exchange rate for the respective periods
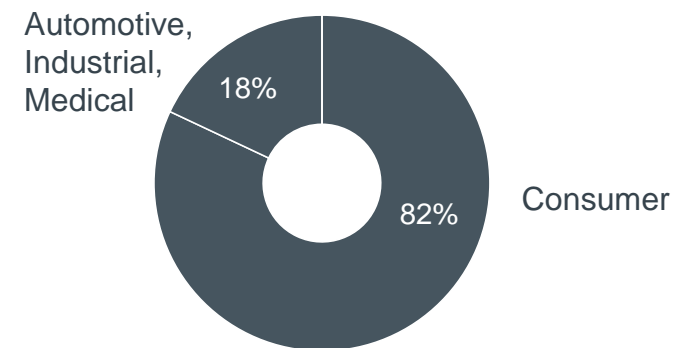
Financial results

USDm

Total revenues

+32.2%

	2018	2019	Q1 2019	Q1 2020
	1.578,1	2.085,9	379,0	501,2

+32.2%

Total revenues by market 2019

Automotive, Industrial, Medical 18%

Consumer 82%

Total revenues by region

	2018	2019	
Asia/Pacific	76%	81%	
Americas	6%	2%	
Europe (EMEA)	18%	17%	

Total backlog

	Dec 31 2019	Mar 31 2020
	264,2	255,5

Consignment stock agreements approx. USD 12-22m

Financial results

USDm, % of revenues

ams — Sensing is life.
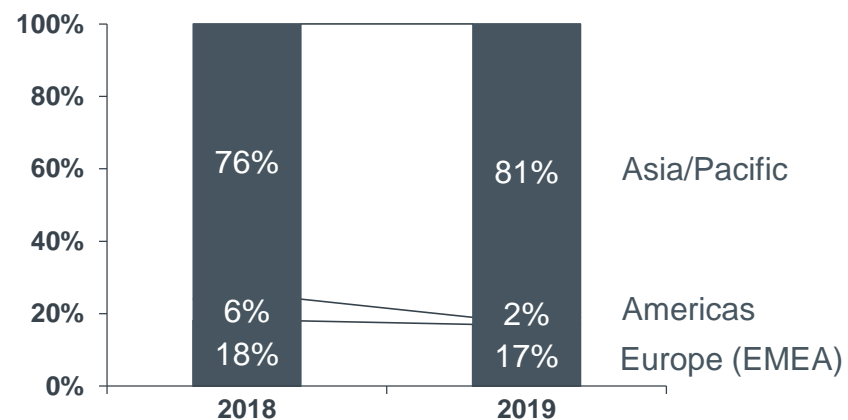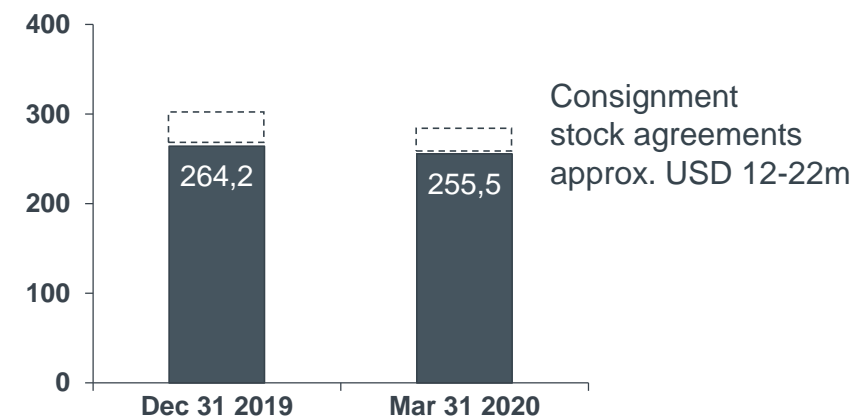
Gross profit, gross margin (adj.)[1]
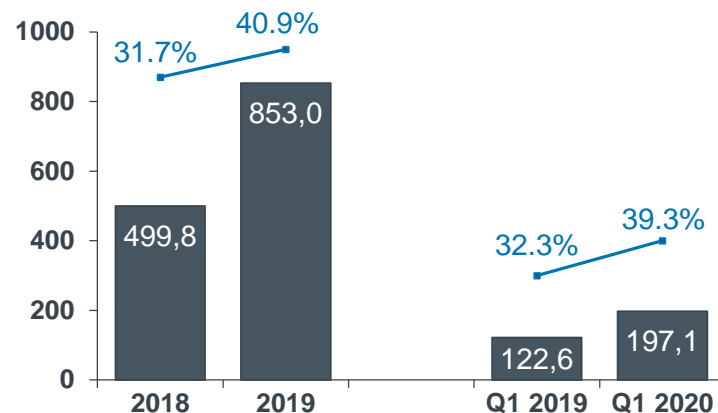
	2018	2019		Q1 2019	Q1 2020
Value	499,8	853,0		122,6	197,1
Margin	31.7%	40.9%		32.3%	39.3%

R&D

	2018	2019		Q1 2019	Q1 2020
Value	264,5	289,0		76,8	65,5
Margin	16.8%	13.9%		20.3%	13.1%

SG&A

	2018	2019		Q1 2019	Q1 2020
Value	157,2	193,6		43,0	64,5
Margin	10.0%	9.3%		11.3%	12.9%

EBIT, EBIT margin (adj.)[1]

	2018	2019		Q1 2019	Q1 2020
Value	141,2	433,4		22,8	101,0
Margin	8.9%	20.8%		6.0%	20.2%
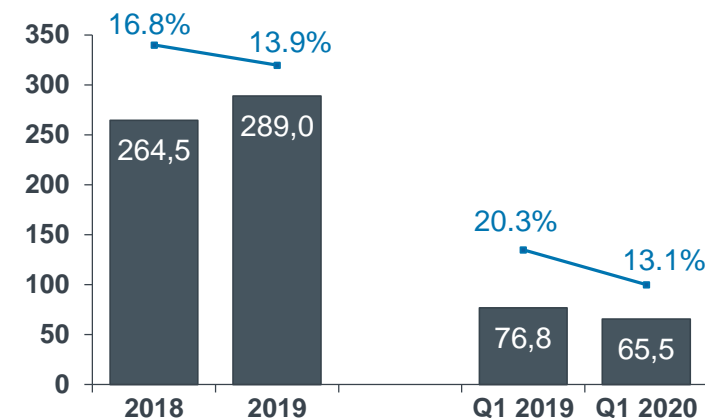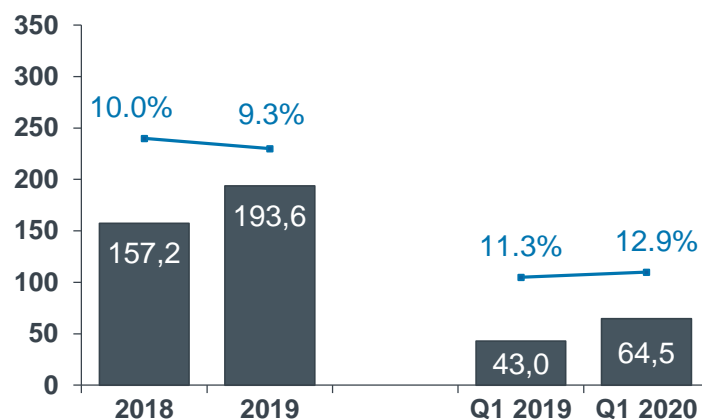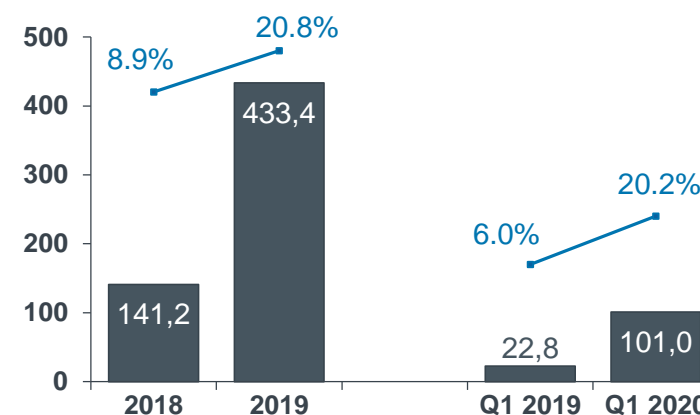
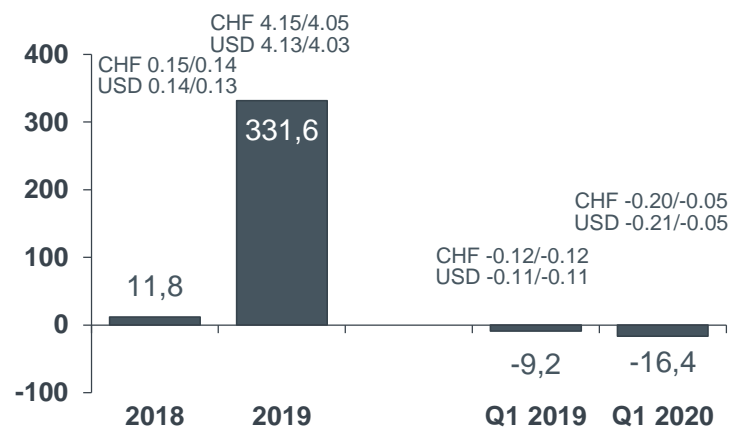[1] Excl. acquisition-related and share-based compensation costs

Financial results

USDm, % of revenues

Net result, EPS (basic/diluted) (adj.)[1]

CHF 4.15/4.05
USD 4.13/4.03

CHF 0.15/0.14
USD 0.14/0.13

CHF -0.20/-0.05
USD -0.21/-0.05

CHF -0.12/-0.12
USD -0.11/-0.11

- 2018: 11,8
- 2019: 331,6
- Q1 2019: -9,2
- Q1 2020: -16,4

Operating cash flow

- 2018: 349,0 — 22.1%
- 2019: 714,4 — 34.2%
- Q1 2019: 93,3 — 24.6%
- Q1 2020: 234,7 — 46.8%
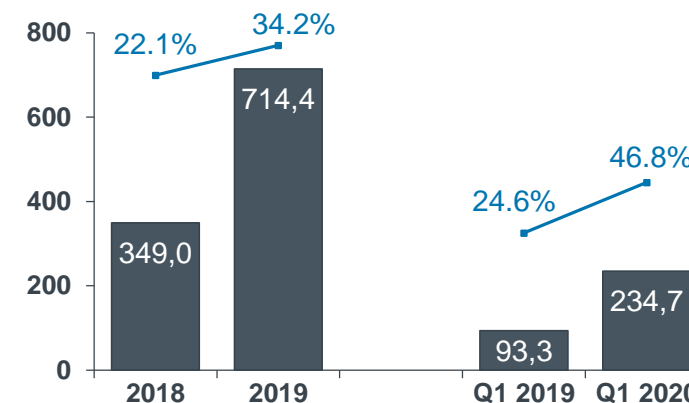
Net debt, cash + short term investments

Net debt

- Q1 2019: 1.364
- Q1 2020: 1.552

Cash + short term invest.

- Q1 2019: 628,1
- Q1 2020: 826,9

Capital expenditures

- 2018: 456,9 — 29.0%
- 2019: 200,9 — 9.6%
- Q1 2019: 85,4 — 22.5%
- Q1 2020: 36,9 — 7.4%
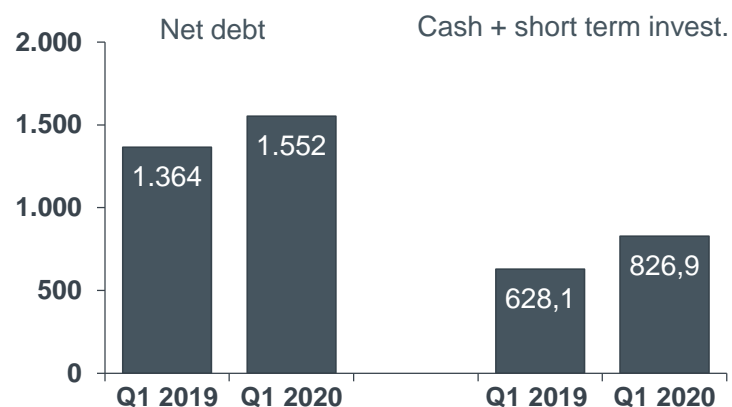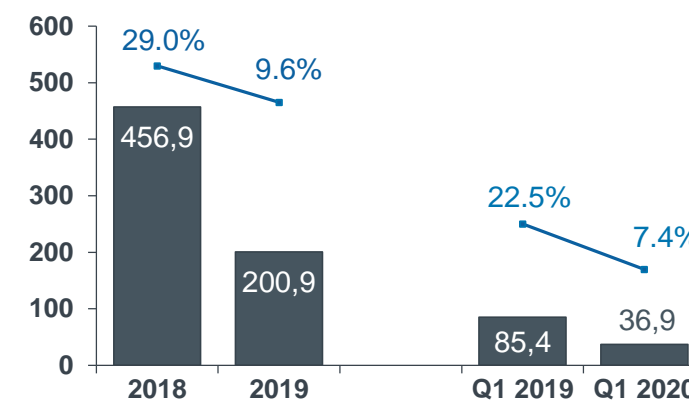
[1] Net result and earnings per share excluding valuation effect of the option element of the issued USD convertible bond

ams

Shaping the world with sensor solutions

Profit and loss statement

USDm

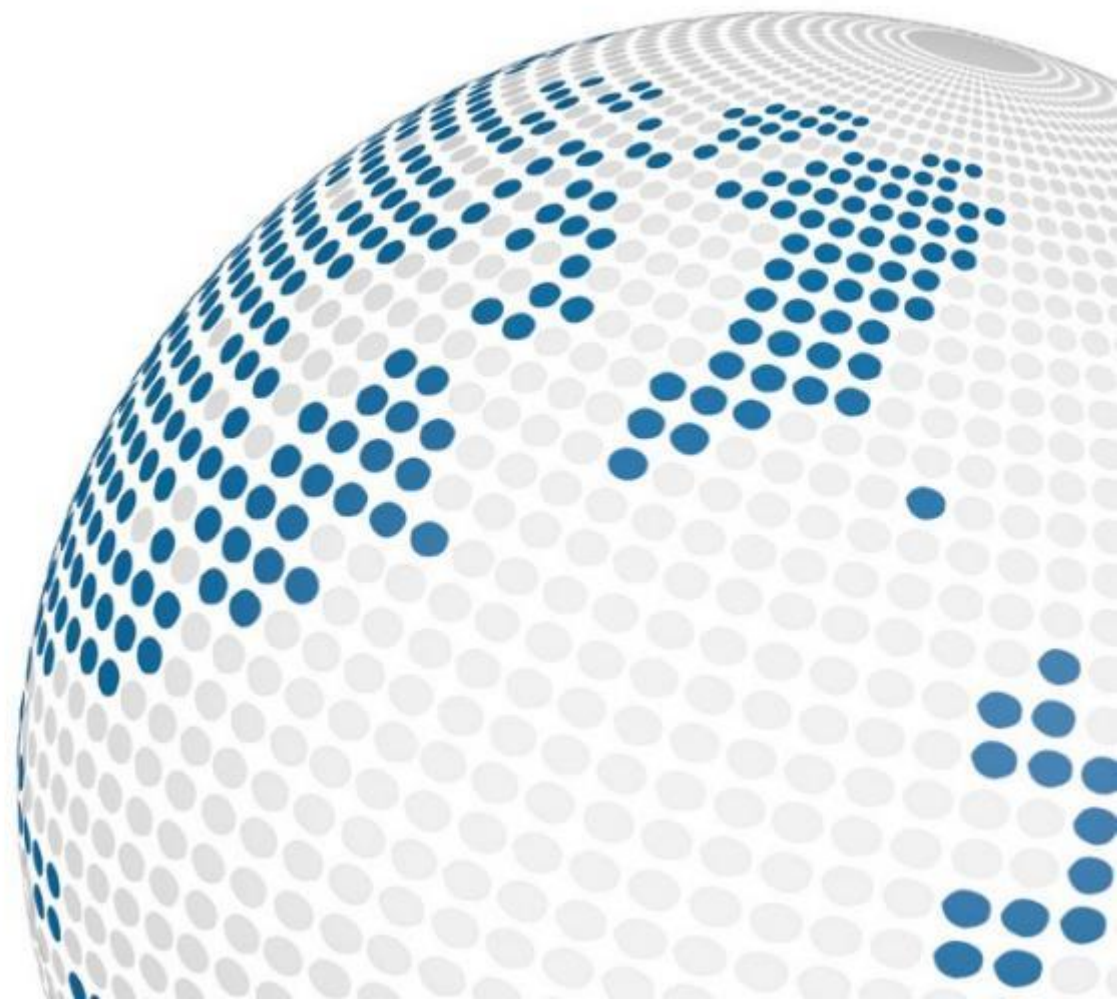| (IFRS)	2019	2018	Q1 2020	Q1 2019
Revenues	2,085.9	1,578.0	501.2	379.0
Gross profit	799.9	429.2	185.9	111.6
• Gross margin (adjusted[1])	40.9%	31.7%	39.3%	32.3%
• Gross margin (IFRS reported)	38.3%	27.2%	37.1%	29.4%
Research and development	-289.0	-264.5	-65.5	-76.8
Selling, general and administrative	-193.6	-157.2	-64.5	-43.0
Other operating income/expenses	48.4	7.3	4.0	4.0
Result from operations (EBIT)	363.7	14.3	59.8	-4.4
• EBIT margin (adjusted[1])	20.8%	8.9%	20.2%	6.0%
• EBIT margin (IFRS reported)	17.4%	0.9%	11.9%	-1.1%
Net financing costs	-14.3	86.8	-72.9	-2.7
Result before tax	349.4	101.0	-13.1	-7.1
Income tax result	-17.7	2.3	-2.6	-2.1
Net result (adjusted[2])	331.6	11.8	-16.4	-9.2
Net result (IFRS reported)	331.7	103.4	-15.7	-9.2

[1] Excl. acquisition-related, one-time restructuring and share-based compensation costs
[2] Net result excluding valuation effect of the option element of the issued convertible bond

Balance sheet

USDm

Assets (IFRS)	Mar 31, 2020	Dec 31, 2019	Liabilities and equity	Mar 31, 2020	Dec 31, 2019
Cash and short term invest.	826.9	552.0	Interest-bearing debt	1,003.5	862.1
Trade receivables	142.5	222.7	Trade liabilities	159.4	149.4
Inventories	246.6	231.8	Tax liabilities	22.9	21.7
Other current assets	386.2	143.1	Provisions	132.6	124.3
Assets held for sale	0.0	95.0	Other liabilities	404.2	170.7
Total current assets	**1,602.2**	**1,244.5**	**Total current liabilities**	**1,722.6**	**1,328.2**
Fixed assets	1,233.5	1,246.5	Interest-bearing debt	1,375.9	1,434.6
Intangible assets	1,254.0	1,244.2	Employee benefits	55.6	54.0
Right of use assets	139.7	135.5	Deferred tax liabilities	68.4	69.1
Investments in associates	54.4	30.8	Other liabilities	138.1	140.5
Deferred tax asset	8.0	9.4			
Other non-current assets	8.9	2.0			
Long-term financial assets	834.8	977.3			
Total non-current assets	**3,533.4**	**3,645.6**	**Total non-current liabilities**	**1,638.1**	**1,698.2**
			Shareholders' equity	**1,774.9**	**1,863.7**
Total assets	**5,135.5**	**4,890.1**	**Total liabil. and equity**	**5,135.5**	**4,890.1**

Cash flow statement

USDm

(IFRS)	2019	2018	Q1 2020	Q1 2019
Result before tax	349.4	101.0	-13.1	-7.1
Depreciation	310.0	235.2	83.6	74.03
Cash flow from operations	714.4	349.0	234.7	93.3
Capital expenditures	-200.9	-456.9	-36.9	-85.4
Cash flow from investing activities	-1,011.7	-458.8	-161.2	-92.7
Proceeds from borrowings	632.8	364.5	100.1	13.8
Proceeds from issue of convertible bond	0.0	677.1	0.0	0.0
Repayment of debt	-264.1	-350.6	-33.5	-39.2
Dividends paid	0.0	-30.5	0.0	0.0
Changes resulting from capital increase	0.0	0.0	0.0	0.0
Cash flow from financing activities	158.3	449.7	193.1	-64.8
Change in cash and cash equivalents (incl. effects of changes in foreign exchange rates)	-139.1	339.9	274.9	-61.5
Cash and cash equivalents at end of period	553.7	691.7	826.9	628.1