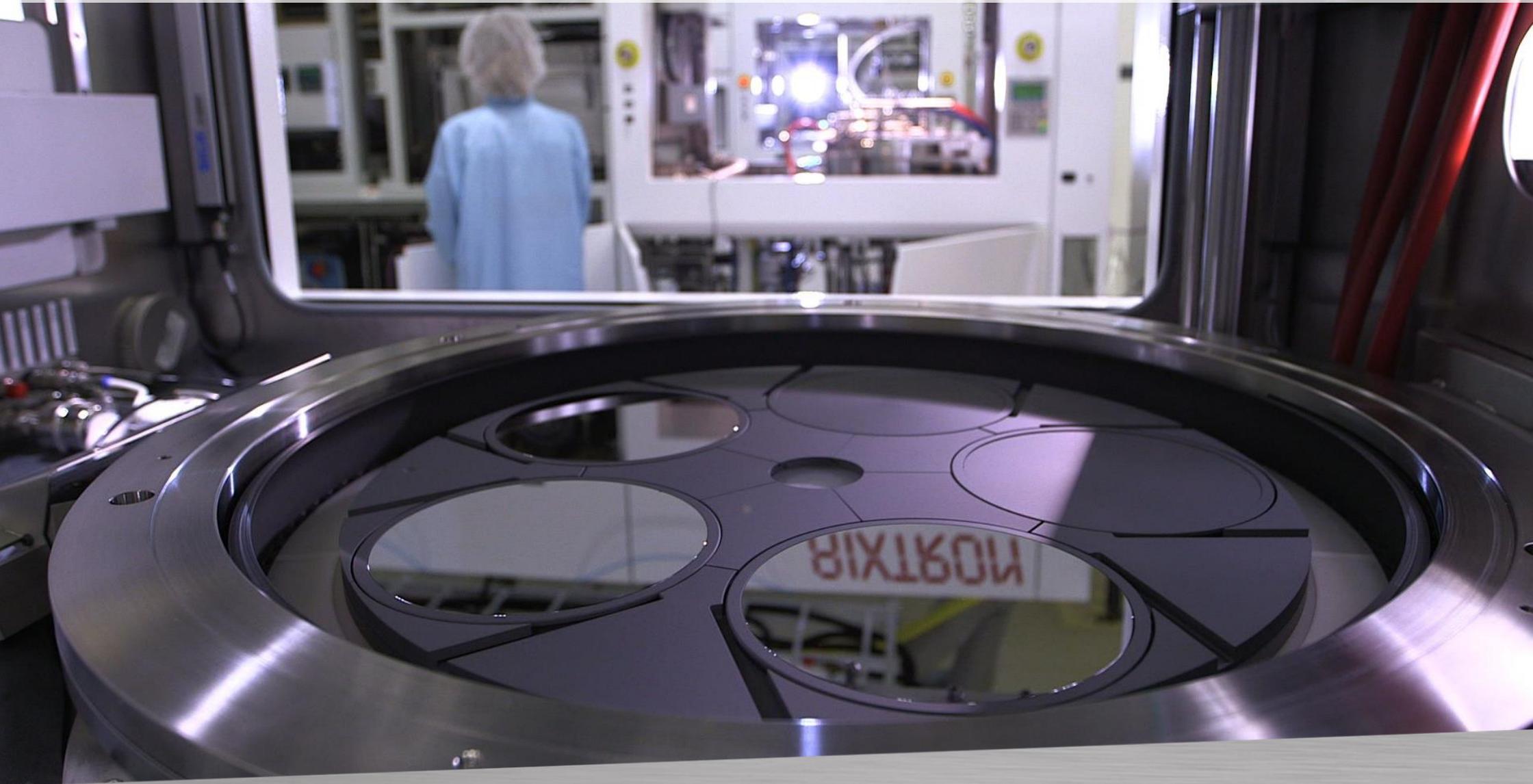


# **AIXTRON** Investor Presentation



IR Presentation – First Quarter 2021

## Forward-Looking Statements

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This document may contain forward-looking statements regarding the business, results of operations, financial condition and earnings outlook of AIXTRON. These statements may be identified by words such as “may”, “will”, “expect”, “anticipate”, “contemplate”, “intend”, “plan”, “believe”, “continue” and “estimate” and variations of such words or similar expressions. These forward-looking statements are based on the current assessments, expectations and assumptions of the executive board of AIXTRON, of which many are beyond control of AIXTRON, based on information available at the date hereof and subject to risks and uncertainties. You should not place undue reliance on these forward-looking statements. Should these risks or uncertainties materialize, or should underlying expectations not occur or assumptions prove incorrect, actual results, performance or achievements of AIXTRON may materially vary from those described explicitly or implicitly in the relevant forward-looking statement. This could result from a variety of factors, such as those discussed by AIXTRON in public reports and statements, including but not limited to those reported in the chapter “Risk Report”. AIXTRON undertakes no obligation to revise or update any forward-looking statements as a result of new information, future events or otherwise, unless expressly required to do so by law. This document is an English language translation of a document in German language. In case of discrepancies, the German language document shall prevail and shall be the valid version.

Due to rounding, numbers presented throughout this report may not add up precisely to the totals indicated and percentages may not precisely reflect the absolute figures for the same reason.

Our registered trademarks: AIXACT<sup>®</sup>, AIXTRON<sup>®</sup>, APEVA<sup>®</sup>; Atomic Level SolutionS<sup>®</sup>, Close Coupled Showerhead<sup>®</sup>, CRIUS<sup>®</sup>, EXP<sup>®</sup>, EPISON<sup>®</sup>, Gas Foil Rotation<sup>®</sup>, Optacap<sup>™</sup>, OVPD<sup>®</sup>, Planetary Reactor<sup>®</sup>, PVPD<sup>®</sup>, STExS<sup>®</sup>, TriJet<sup>®</sup>

# Our Vision

---

## Technology. Materials. Performance.

### Technology.

We are the **recognized technology leader** in complex material deposition.

### Materials.

We **enable our customers** to successfully shape the markets of the future, exploiting the potential offered by **new materials**.

### Performance.

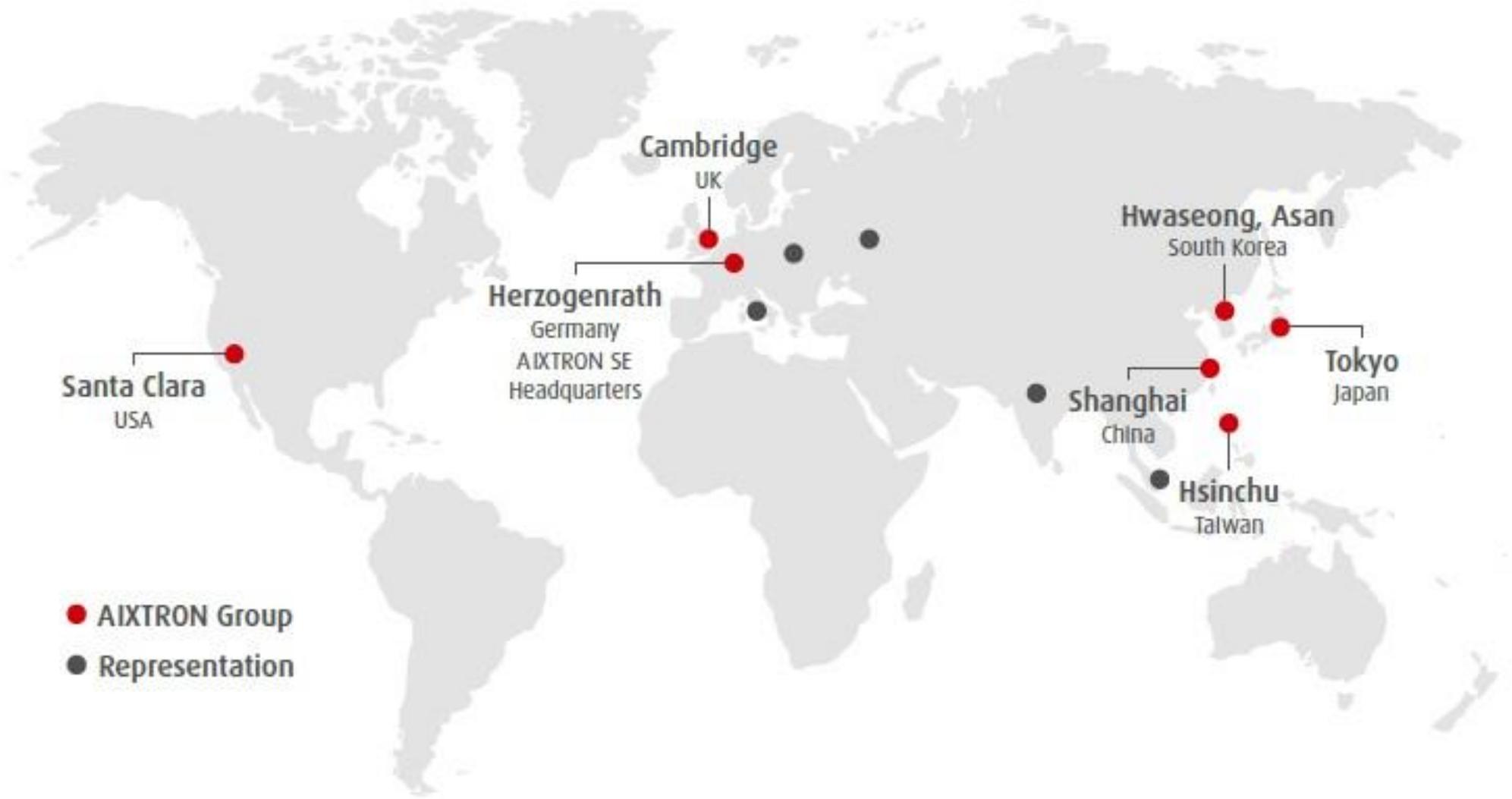
We **deliver the performance** driving **economic success** through our expertise, our employees and the quality of our products.

## Who we are



- Headquarters based near Aachen, Germany
- Worldwide presence in 7 countries
- R&D and production facilities in Germany and UK
- over 700 employees
- Company founded in 1983, >35 years of experience
- Technology leader in deposition systems
- Over 3,500 deposition systems sold worldwide
- Went public in 1997, listed in TecDAX and MDAX

# Where we are



- AIXTRON Group
- Representation

# What We Do



We provide enabling **Deposition Technologies to the Compound Semiconductor and Display Industry**

## For Optoelectronics and Power Electronics

- **Metal-Organic Chemical Vapor Deposition (MOCVD)** for the deposition of compound materials to produce for instance Lasers, LEDs, GaN and SiC Power Electronics or other Optoelectronic components
- **Plasma-enhanced Chemical Vapor Deposition (PECVD)** for the deposition of Carbon Nanostructures and 2D materials (Carbon Nanotubes, Nanowires or Graphene)

## For Organic Electronics Applications

- **Organic Vapor Phase Deposition (OVPD)\***  for the deposition of Organic Light Emitting Diodes (OLED) based displays for smartphones to TV

\*These thin film deposition technologies are offered by AIXTRON's subsidiary APEVA.

# Technology Portfolio for Complex Material Deposition

OLED: OVPD®/PVPD®



Our technology. Your future.

Nanomaterials

NANO: Innovation Pool

LEDs / Optoelectronics



**Lasers (VCSEL/EEL)**

(e.g. 3D Sensing, Lidar, Consumer Electronics, Optical Datacom)



**Specialty LEDs**

(e.g. Fine Pitch-, MiniLED-Displays & Backlighting, UV-LED Disinfection, Micro LED-Displays, Horticulture)



**GaN Power | GaN/GaAs RF**

(e.g. Wireless Charging, Fast Charging, Power Supply, 5G Network, Consumer Electronics)



**SiC Power**

(e.g. Electric Vehicles, Charging Stations, Infrastructure)

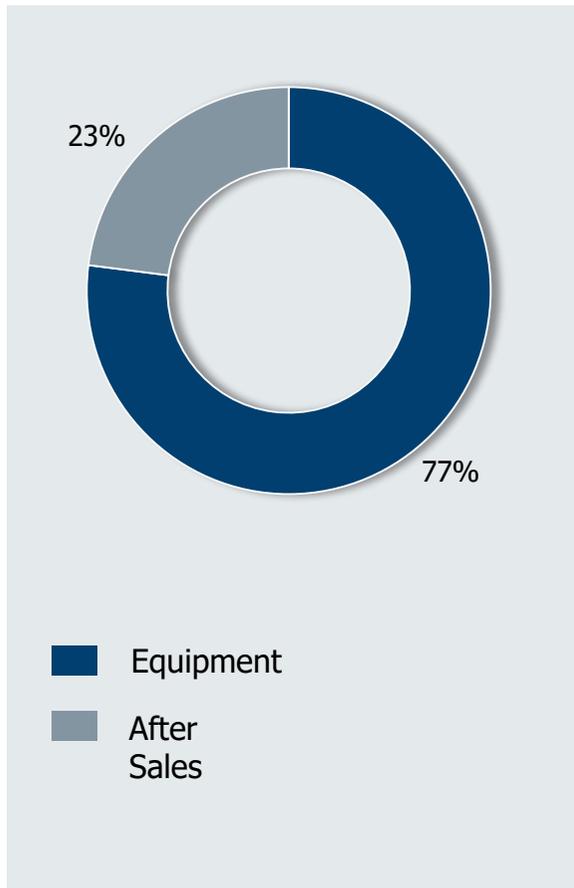
Power Management

**MOCVD Core Technology**

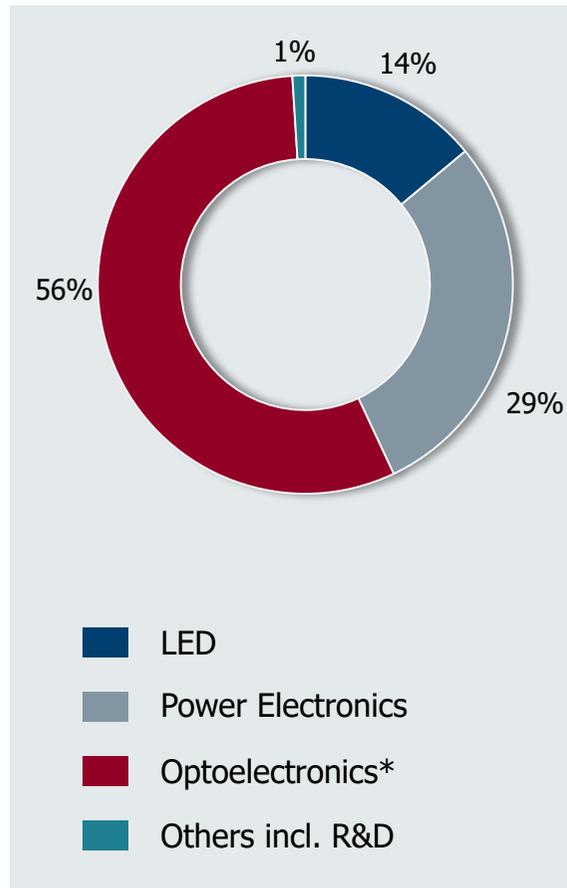
# Revenue Analysis\*

\* Rounded figures; may not add up

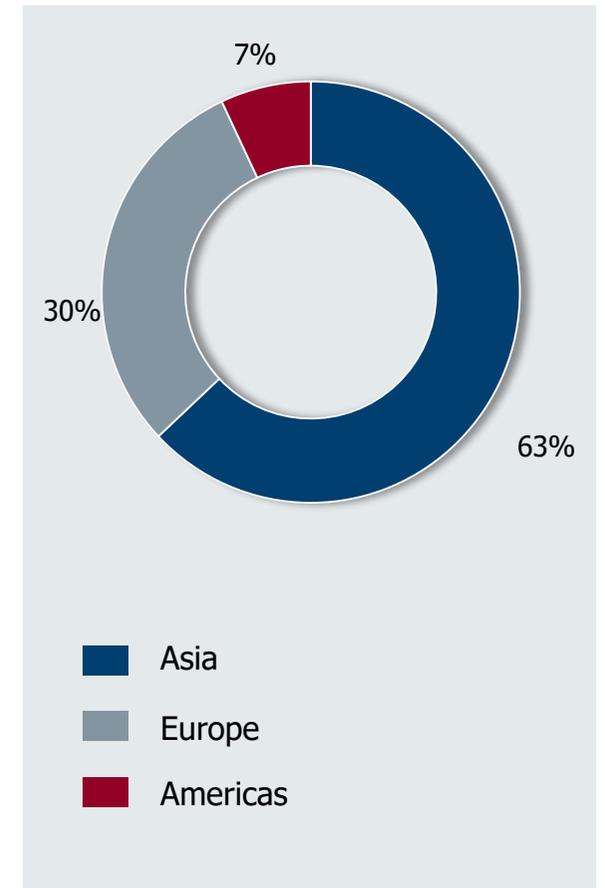
Q1/2021:  
by equipment & after sales



Q1/2021:  
by end application  
(equipment only)



Q1/2021:  
by region

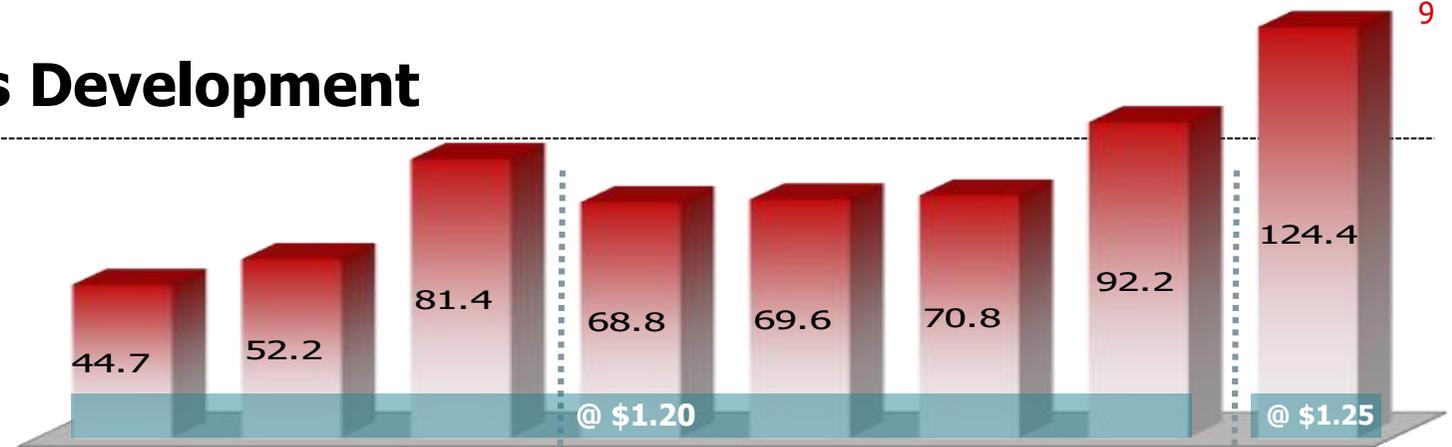


\* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom and Solar

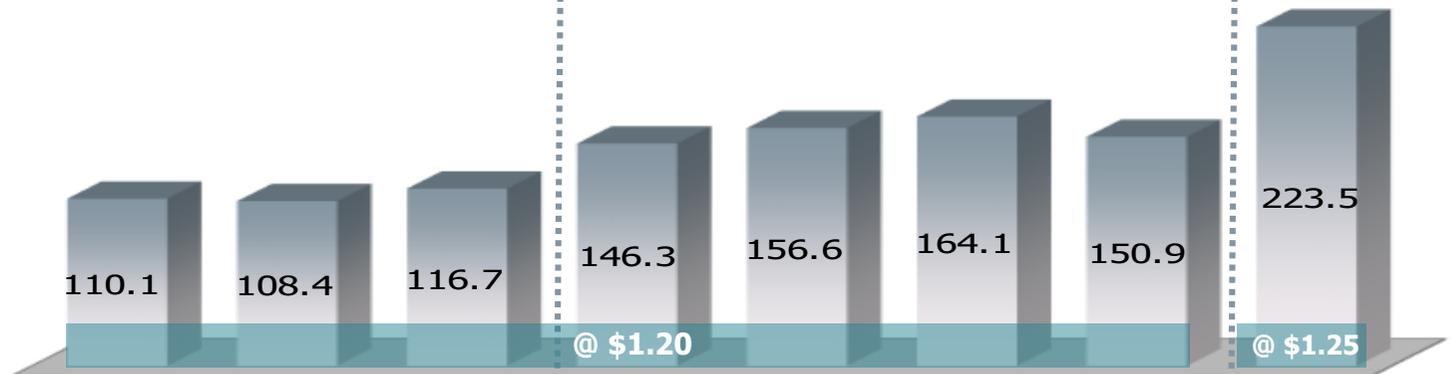
# 24 - Month Business Development

(€ million)

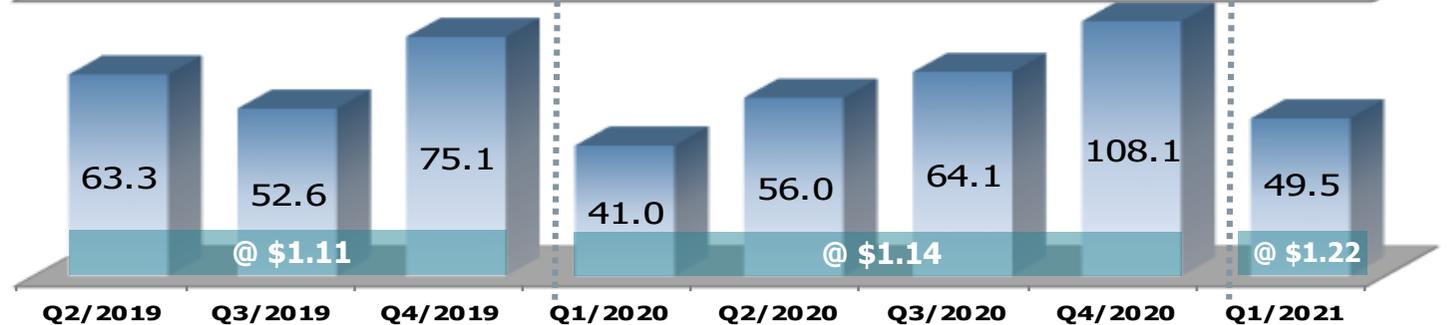
**Order Intake**  
(incl. Equipment & After Sales)



**Order Backlog**  
(Equipment only)



**Revenues**  
(incl. Equipment & After Sales)



USD order intake and backlog were recorded at the prevailing budget rate (2019-2020: \$1.20€/; 2021: \$1.25/€)

USD revenues were converted at the actual period average FX rate (Q2-Q4/2019: \$1.11/€; 2020: \$1.14/€; Q1/2021: \$1.22/€)

# Consolidated Income Statement\*

\* Rounded figures; may not add up

| (€ million)                | Q1/21       | Q1/20       | +/-<br>%   | Q1/21       | Q4/20        | +/-<br>%    |
|----------------------------|-------------|-------------|------------|-------------|--------------|-------------|
| <b>Revenues</b>            | <b>49.5</b> | <b>41.0</b> | <b>21</b>  | <b>49.5</b> | <b>108.1</b> | <b>-54</b>  |
| Cost of sales              | 32.2        | 26.4        | 22         | 32.2        | 63.1         | -49         |
| <b>Gross profit</b>        | <b>17.3</b> | <b>14.6</b> | <b>18</b>  | <b>17.3</b> | <b>45.0</b>  | <b>-62</b>  |
| %                          | 35          | 36          | -1 pp      | 35          | 42           | -7 pp       |
| Selling expenses           | 2.2         | 2.7         | -18        | 2.2         | 2.4          | -9          |
| General & admin expenses   | 5.6         | 4.8         | 18         | 5.6         | 4.2          | 33          |
| R&D                        | 11.9        | 14.4        | -18        | 11.9        | 17.2         | -31         |
| Net other operating income | (1.7)       | (6.2)       | -72        | (1.7)       | (3.3)        | -47         |
| <b>EBIT</b>                | <b>-0.7</b> | <b>-1.1</b> | <b>36</b>  | <b>-0.7</b> | <b>24.5</b>  | <b>-103</b> |
| %                          | -1          | -3          | 2 pp       | -1          | 23           | -24 pp      |
| <b>Net result</b>          | <b>3.8</b>  | <b>-0.8</b> | <b>575</b> | <b>3.8</b>  | <b>24.9</b>  | <b>-85</b>  |
| %                          | 8           | -2          | 10 pp      | 8           | 23           | -15 pp      |

# Balance Sheet\*

\* Rounded figures; may not add up

| (€ million)                               | 31/03/21     | 31/12/20     | 31/03/20     |
|---|--------------|--------------|--------------|
| Property, plant & equipment               | 65.4         | 63.5         | 65.9         |
| Goodwill                                  | 71.9         | 71.0         | 72.2         |
| Other intangible assets                   | 2.4          | 2.9          | 2.8          |
| Others**                                  | 79.9         | 74.9         | 11.9         |
| <b>Non-current assets</b>                 | <b>219.6</b> | <b>212.2</b> | <b>152.8</b> |
| Inventories                               | 97.3         | 79.1         | 85.2         |
| Trade receivables                         | 42.6         | 41.3         | 17,1         |
| Others                                    | 14.3         | 8.1          | 9.7          |
| Cash & Cash Deposits & Investments        | 281.0        | 249.7        | 300.8        |
| <b>Current Assets</b>                     | <b>435.2</b> | <b>378.2</b> | <b>412.8</b> |
| <b>Equity</b>                             | <b>505.0</b> | <b>496.4</b> | <b>462.9</b> |
| <b>Non-current liabilities</b>            | <b>7.8</b>   | <b>6.6</b>   | <b>4.1</b>   |
| Trade payables                            | 15.6         | 10.8         | 15.9         |
| Contract liabilities for advance payments | 100.6        | 50.8         | 60.2         |
| Others                                    | 25.8         | 25.8         | 22.4         |
| <b>Current liabilities</b>                | <b>141.9</b> | <b>87.5</b>  | <b>98.5</b>  |
| <b>Balance Sheet total</b>                | <b>654.8</b> | <b>590.4</b> | <b>565.6</b> |

\*\* Includes cash deposits of EUR 60m in Q1/2021 and Q4/2020

# Consolidated Statement of Cash Flows\*

Rounded figures; may not add up

| (€ million)                                       | Q1/21        | Q1/20        | Q1/21        | Q4/20        |
|---|--------------|--------------|--------------|--------------|
| <b>Net Result</b>                                 | <b>3.8</b>   | <b>(0.8)</b> | <b>3.8</b>   | <b>24.9</b>  |
| Adjust for  |              |              |              |              |
| Non Cash Items                                    | (1.6)        | (0.1)        | (1.6)        | 2.0          |
| Changes in Working Capital                        | 29.6         | 5.6          | 29.6         | (8.5)        |
| <b>Cash Flow from Operating Activities**</b>      | <b>31.8</b>  | <b>4.7</b>   | <b>31.8</b>  | <b>18.4</b>  |
| <b>Capital Expenditures/Disposals</b>             | <b>(3.7)</b> | <b>(1.7)</b> | <b>(3.7)</b> | <b>(1.1)</b> |
| <b>Free Cash Flow</b>                             | <b>28.1</b>  | <b>3.0</b>   | <b>28.1</b>  | <b>17.3</b>  |
| <b>FX Effects/Other</b>                           | <b>3.2</b>   | <b>(0.4)</b> | <b>3.2</b>   | <b>(0.2)</b> |
| <b>Cash, financial investments &amp; deposits</b> | <b>341.0</b> | <b>300.8</b> | <b>341.0</b> | <b>309.7</b> |

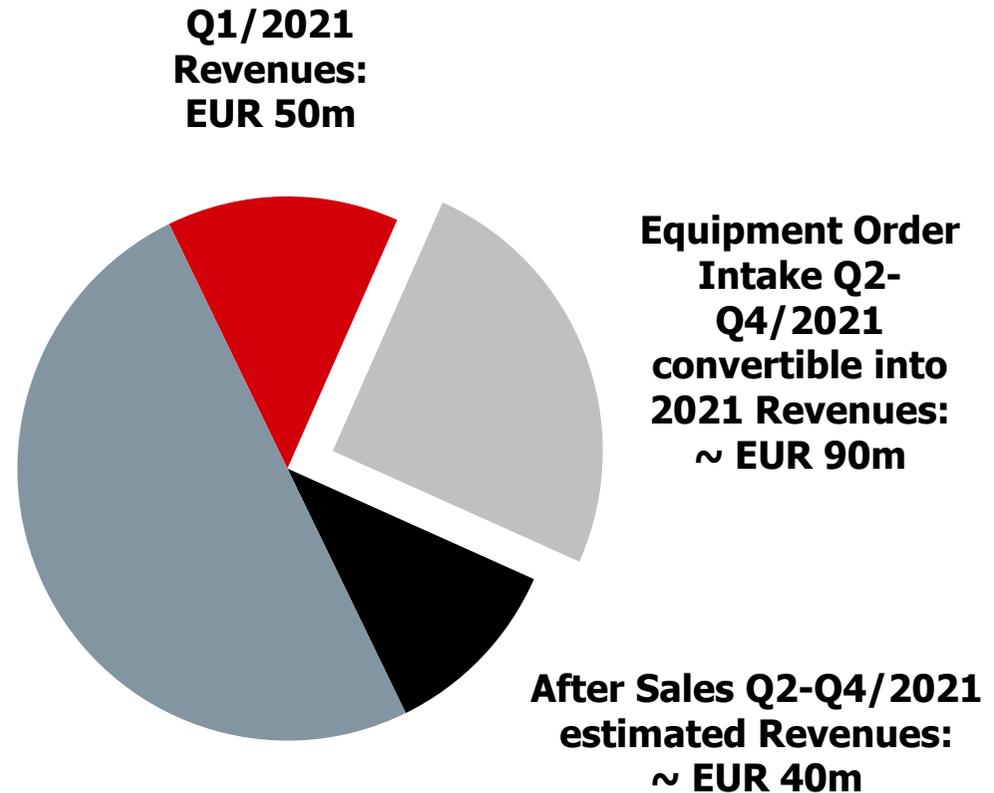
\*\* Excludes changes in financial assets

# AIXTRON – 2021 Guidance\*: Confirmed/Increased

**2021 Guidance\***  
**confirmed/increased** based on Q1 Results, current Order situation and current environment:

- **Total Order Intake**  
*around upper end of range of EUR 340 ~ 380 million*
- **Revenues**  
*around upper end of range of EUR 320 ~ 360 million*
- **Gross Margin** of ~ 40%
- **EBIT Margin** *expected at ~ 18%*  
 (from ~ 16%)

**Equipment Order Backlog convertible into 2021 Revenues: ~ EUR 180m**  
 (as of March 31, 2021)



• At 1.25 USD/EUR Budget Rate for the remainder of the year; please refer to "Expected Results of Operations and Financial Position" in the AIXTRON 2020 Annual Report for further information

## AIXTRON – Q1/2021 Highlights

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### ✓ High order momentum

- Q1-Orders largely driven by GaN Power and 5G Wireless Telecom

### ✓ Q1-Revenues in line with expectation - acceleration in the course of 2021

- Q1/2021 Revenues below previous quarter due to many customer requests for shipments to be pulled forward into Q4/2020; 2021 quarterly Revenues to accelerate each of the quarters

### ✓ 2021 Guidance\* confirmed/increased Orders and Revenues at upper end of range

- Orders 2021: around upper end of EUR 340 ~ 380 million range
- Revenues 2021: around upper end of EUR 320 ~ 360 million range
- Gross Margin: ~ 40% of Revenues; EBIT Margin: increased to ~ 18% of Revenues from 16%

### ✓ APEVA to address business opportunities in China

- Focus on key components of deposition technology
- Customer agreement not expected before 2022

### ✓ New Chief Financial Officer to start in May 2021

- Dr. Christian Danninger will take up his position on May 1<sup>st</sup>, 2021

\* Based on 1.25 USD/EUR Budget Rate;

# Market Prospects

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## Short-Term

- Increasing adoption of compound semiconductor-based lasers for 3D sensor systems in mobile devices as well as sensors for infrastructure applications.
- Further increasing demand for lasers for optical data transmission of large volumes, such as for video streaming and Internet-of-Things (IoT) applications.
- Increasing use of LEDs and specialty LEDs (esp. Red-Orange-Yellow, UV or IR) in displays, disinfection, horticulture and other applications.
- Increasing use of wide-band gap GaN- or SiC-based components for energy-efficient power electronics devices in autos, in consumer electronics, in mobile devices and in IT infrastructure.
- Increasing use of GaN and GaAs-based components in mobile devices (e.g. Smartphones) or network infrastructure for 5G mobile communications.

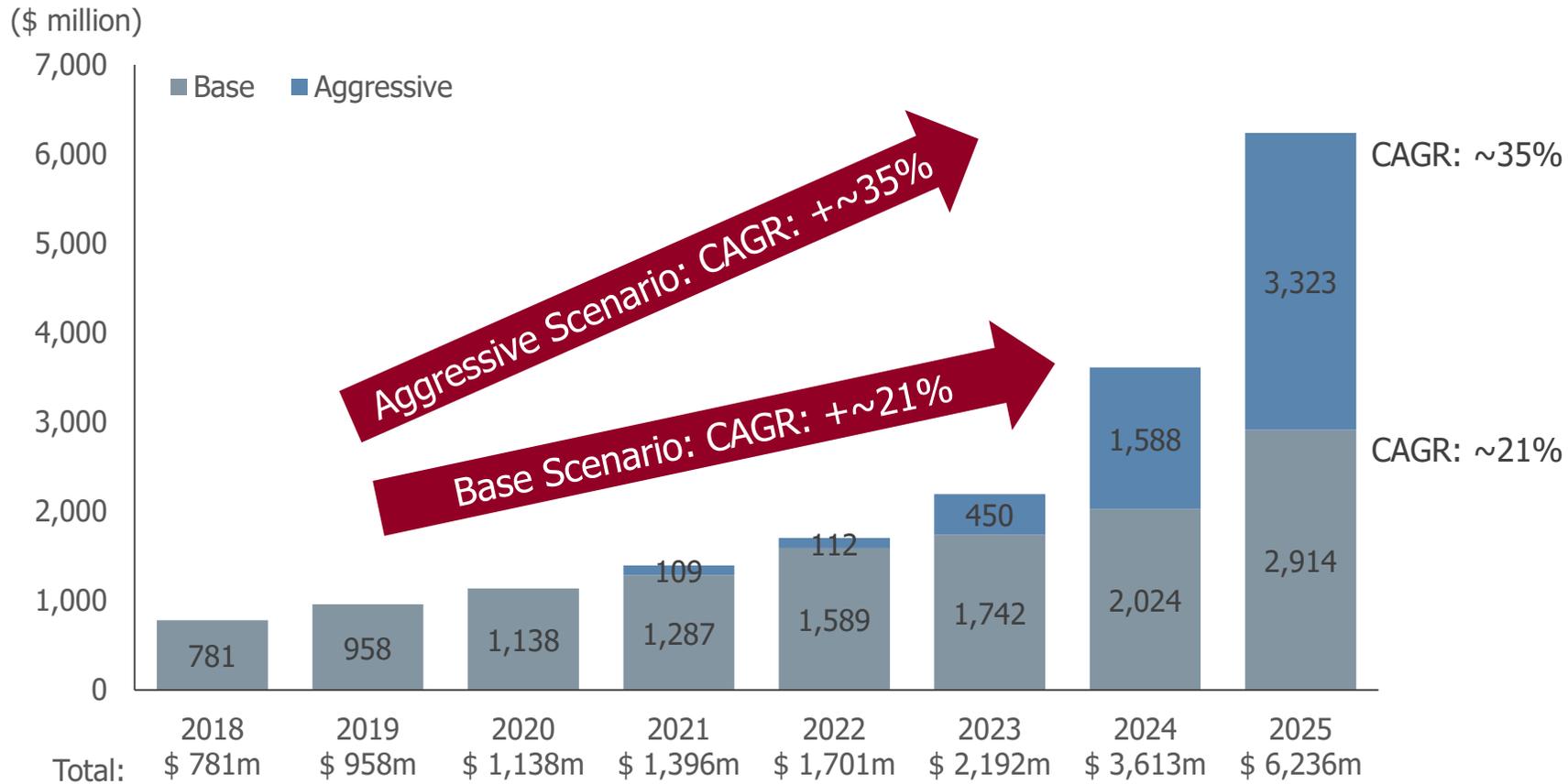
## Mid- to Long-Term

- Development of new applications based on wide-band gap materials such as high-frequency chips or system-on-chip architectures with integrated power management.
- Adoption of Micro LED Displays for volume markets.
- Development of alternative LED applications, such as visual-light communication technology.
- Increased use of compound semiconductor-based sensors for autonomous driving.
- Increased development activities for high performance solar cells made of compound semiconductors.
- Application of GaN-based components in mobile devices (e.g. smartphones) for the millimeter-wave range of 5G and 6G mobile communications.

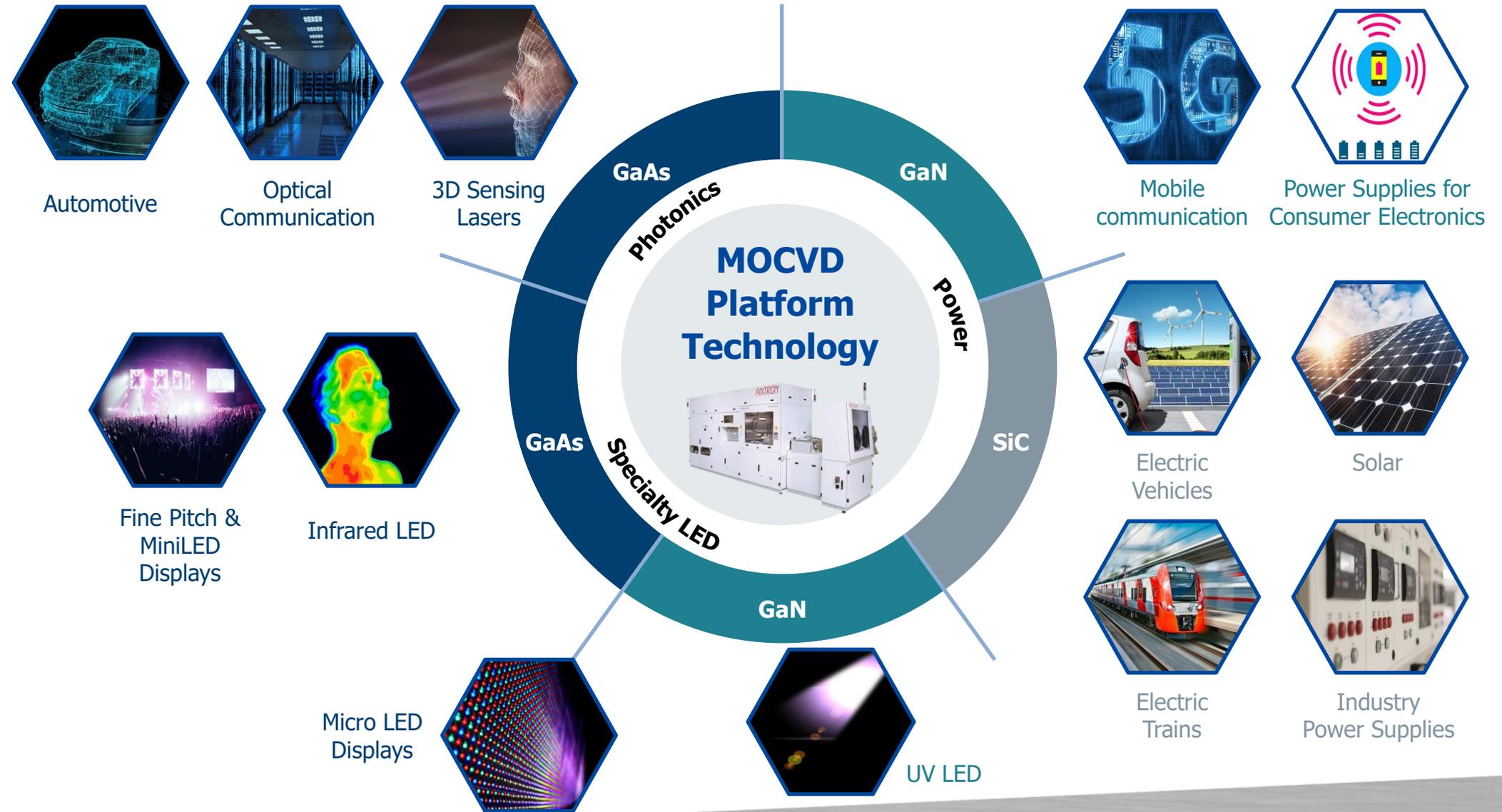
# Epitaxial Growth Equipment Market Forecast\*

\* Excluding MBE

- ✓ **Micro LED equipment demand as strongest driver from 2021 (Aggressive Model)**
- ✓ **Power equipment demand to accelerate from 2021**



# AIXTRON – Enabling Emerging Global Mega Trends



## AIXTRON MOCVD – Planetary Reactor<sup>®</sup>: Tool-of-Record

- ✓ Individual Wafer Rotation = Best Material Uniformity
- ✓ Individual wafer temperature adjustment = Wafer Level Control/Optimization
- ✓ Highest Epi / Product Yield = Lowest Production Cost



# Devices: GaN/SiC Power Electronics – Superior Performance

Source: icons from www.flaticon.com



More Efficient



**Energy Saving**

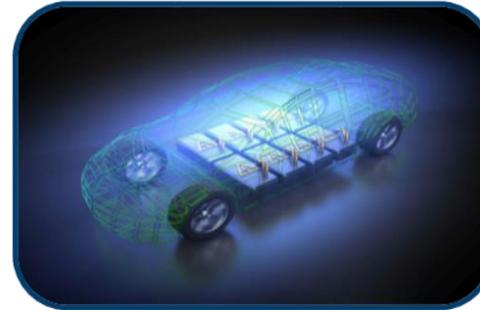
**Less Heat**

**Light Weight**

**Lower System Cost**



Smaller



Electric Vehicles



EV-charging



Data Centers



Renewable Energy



Wireless Charging



Fast Charging

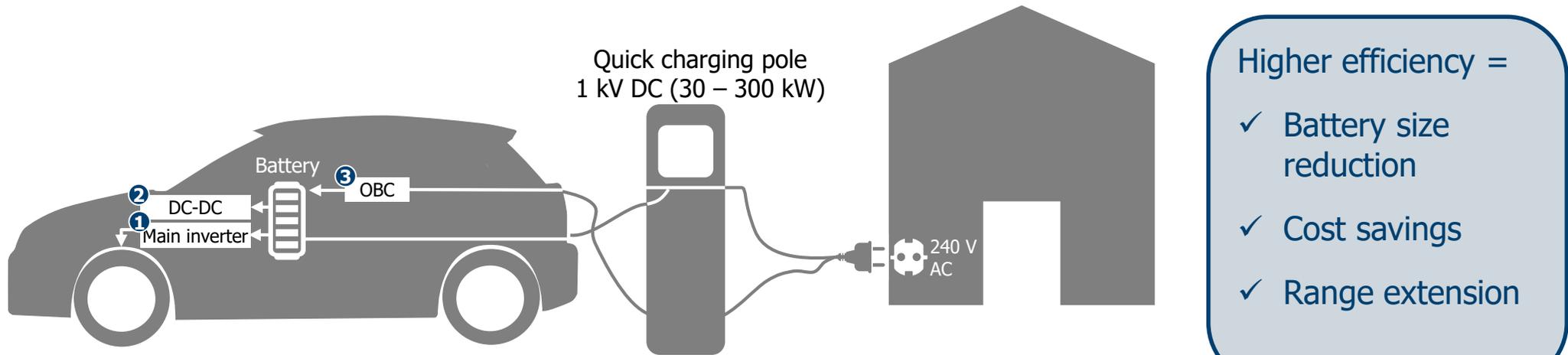
# Overview: GaN/SiC as Wide Band Gap (WBG) Power Electronics

| Consumer Electronics & IT   |   | Automotive   | Energy   | Industrial  |
|---|---|--|--|---|
| Power Management  |   | Power Switching  |  |   |
| 30V   | 600V  | 1.2 kV   | ≥2kV   |   |
| <ul style="list-style-type: none"> <li>• Electronic appliances</li> <li>• Computing</li> <li>• Wireless charging</li> <li>• Power supplies</li> <li>• PFC</li> </ul>  | <ul style="list-style-type: none"> <li>• Infotainment</li> <li>• GPS</li> <li>• Connected car</li> <li>• Autonomous driving</li> <li>• EMI/EMC</li> <li>• Adaptive cruise control</li> </ul>  | <ul style="list-style-type: none"> <li>• General automotive electronic</li> <li>• HEV/EV</li> <li>• Charging station</li> <li>• Inverter / motor drives</li> <li>• Converter</li> <li>• Radar test applications</li> </ul>  | <ul style="list-style-type: none"> <li>• Power Grid / Smart meter / appliances</li> <li>• Solar / Wind inverters</li> <li>• Solar / Wind power DC distribution</li> <li>• storage</li> <li>• UPS</li> </ul>  | <ul style="list-style-type: none"> <li>• UPS</li> <li>• Industrial machines</li> <li>• Building</li> <li>• Mining, oil, gas power generation</li> <li>• Shipping/Rail</li> </ul>  |
| GaN   | GaN / SiC   |  | SiC  |   |

Low to Medium Voltages

Medium to High Voltages

# SiC in Automotive : Main Inverter as the Major Market Opportunity



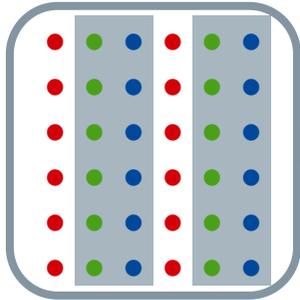
| Component                     | Power (kW) | Fraction 6" wafer* | Comment   |
|-------------------------------|------------|--------------------|---|
| <b>Main inverter</b>          | 20 ~ 150   | 0.1 ~ 0.5          | Brings energy from battery to the electric motor      |
| <b>DC-DC Converter</b>        | 1 ~ 3      | <0.01              | Brings energy from battery for car electronics        |
| <b>On Board Charger (OBC)</b> | 5 ~ 30     | 0.01               | Brings 240 V AC energy from wall plug to battery      |
| <b>(Quick) Charging Pole</b>  | 30 ~ 300   | 0.1 ~ 1            | Brings 1–3 kV DC energy directly from grid to battery |

\* Back-of-the-envelope order-of-magnitude estimates

# Devices: ROY LEDs for RGB\* Displays; UV LEDs for Niche Markets

Source: LEDinside, Yole Développement

## RGB\* LED DISPLAYS



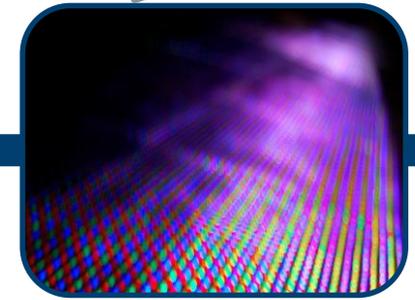
**Stadium Outdoor Display**  
(Pixel Pitch  $\geq 10\text{mm}$ )  
(Chip size:  $\geq 200\mu\text{m}$ )



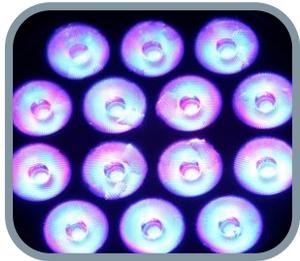
**Fine Pitch Indoor Display**  
(Pixel Pitch  $\leq 2.5\text{mm}$ )  
(Chip size:  $\geq 200\mu\text{m}$ )



**MiniLED for Consumer Electronics**  
(Chip size:  $\leq 200\mu\text{m}$ )



**Micro LED for Consumer Electronics**  
(Chip size:  $\leq 50\mu\text{m}$ )



**UV LED**



**Curing**



**Water Disinfection**



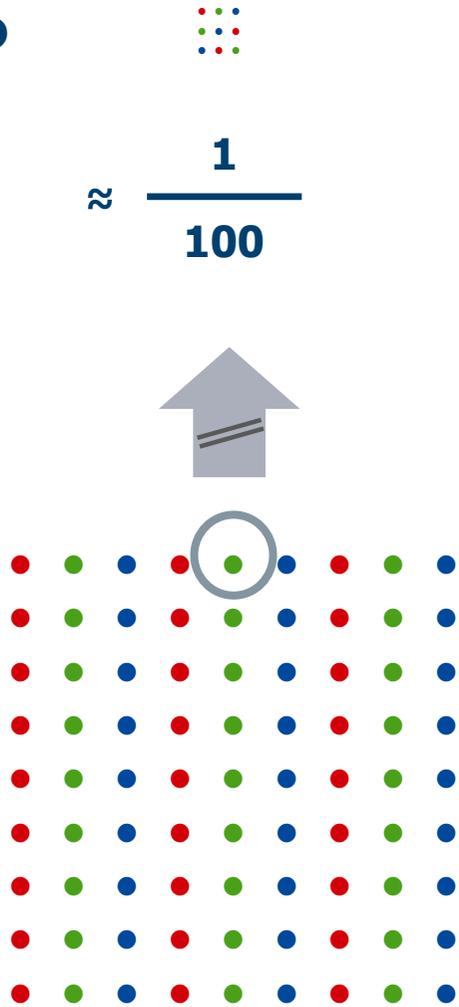
**Air Purifier**

\*RGB = Red, Green & Blue

# Devices: Micro LED – The Perfect Future Display Technology

Source: LEDinside

RGB\*  
Micro LED  
Display



RGB\*  
LED  
Display

Self-Emissive

Low Power  
Consumption

Perfect  
Contrast

High  
Brightness

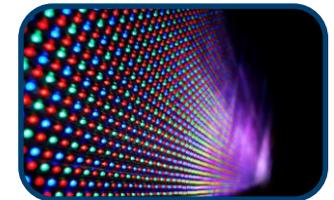
Fast  
Response



Wearables



AR/VR



Signage



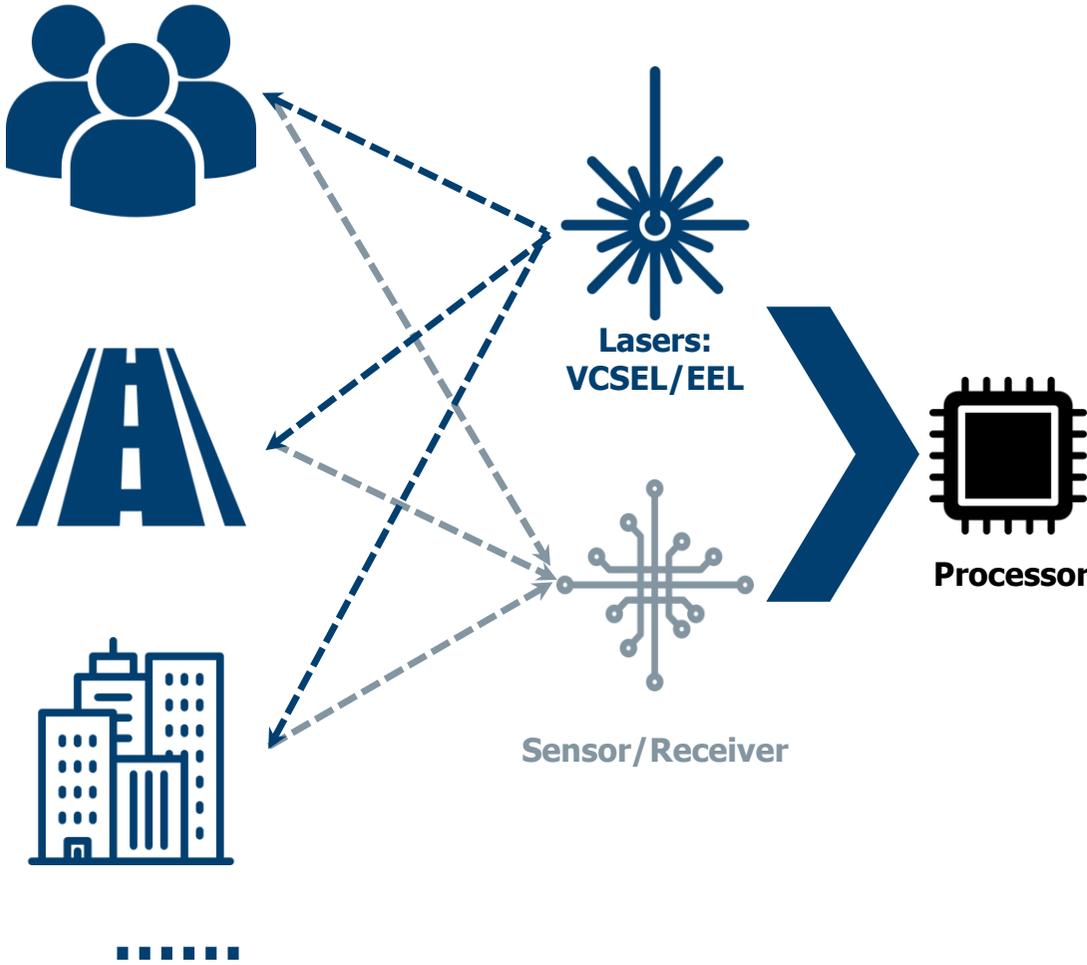
Smartphones/Tablets/TVs

\*RGB = Red, Green & Blue

# Devices: VCSEL/EEL – Internet of Things Creates New Opportunities

Source: icons from www.flaticon.com

3D Sensing Functionality  
Face Recognition / Lidar



Facial Recognition



Autonomous Driving



Tailor-made clothing/shoes



Interior Design



Mapping

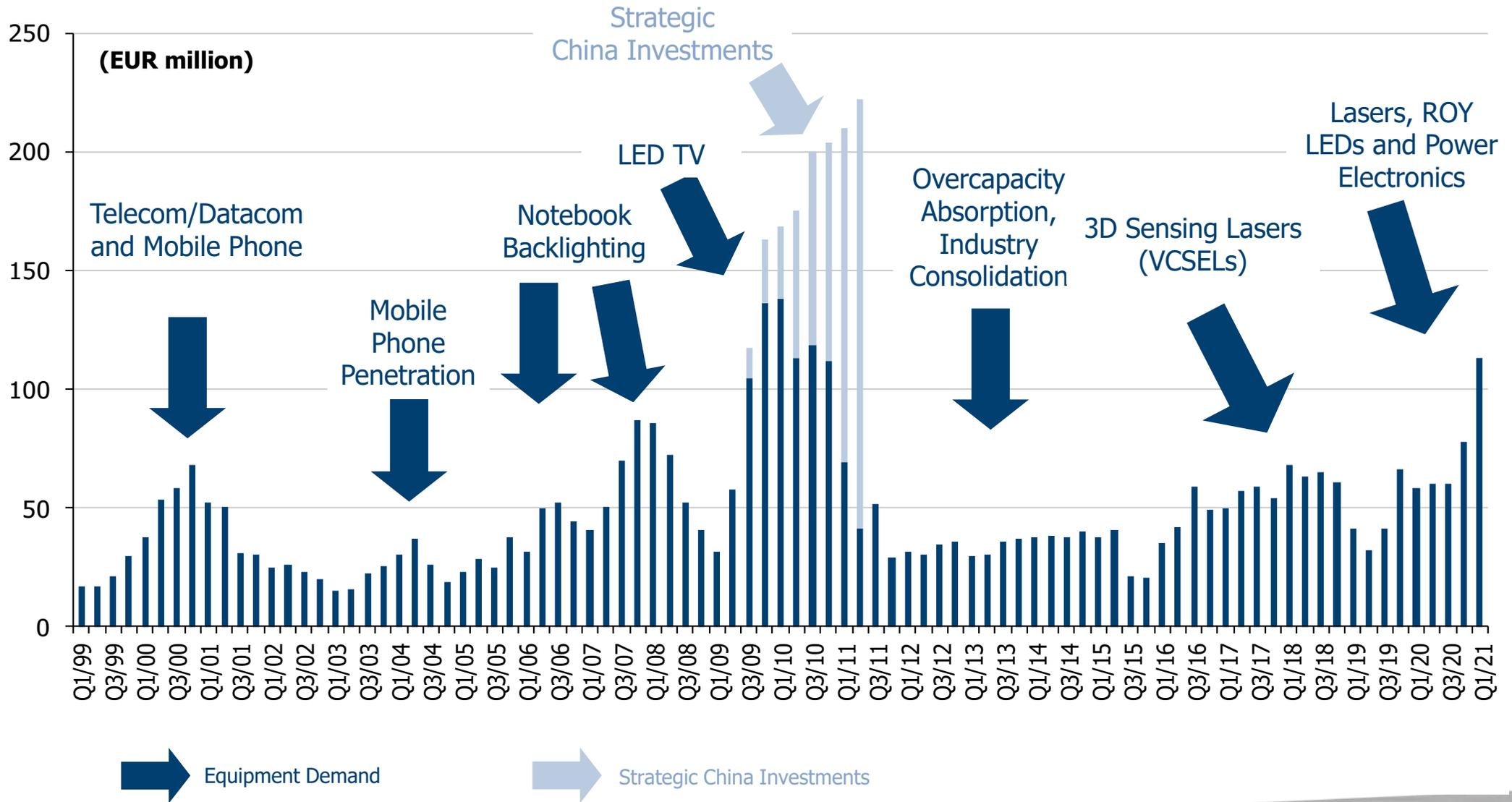


Industry 4.0

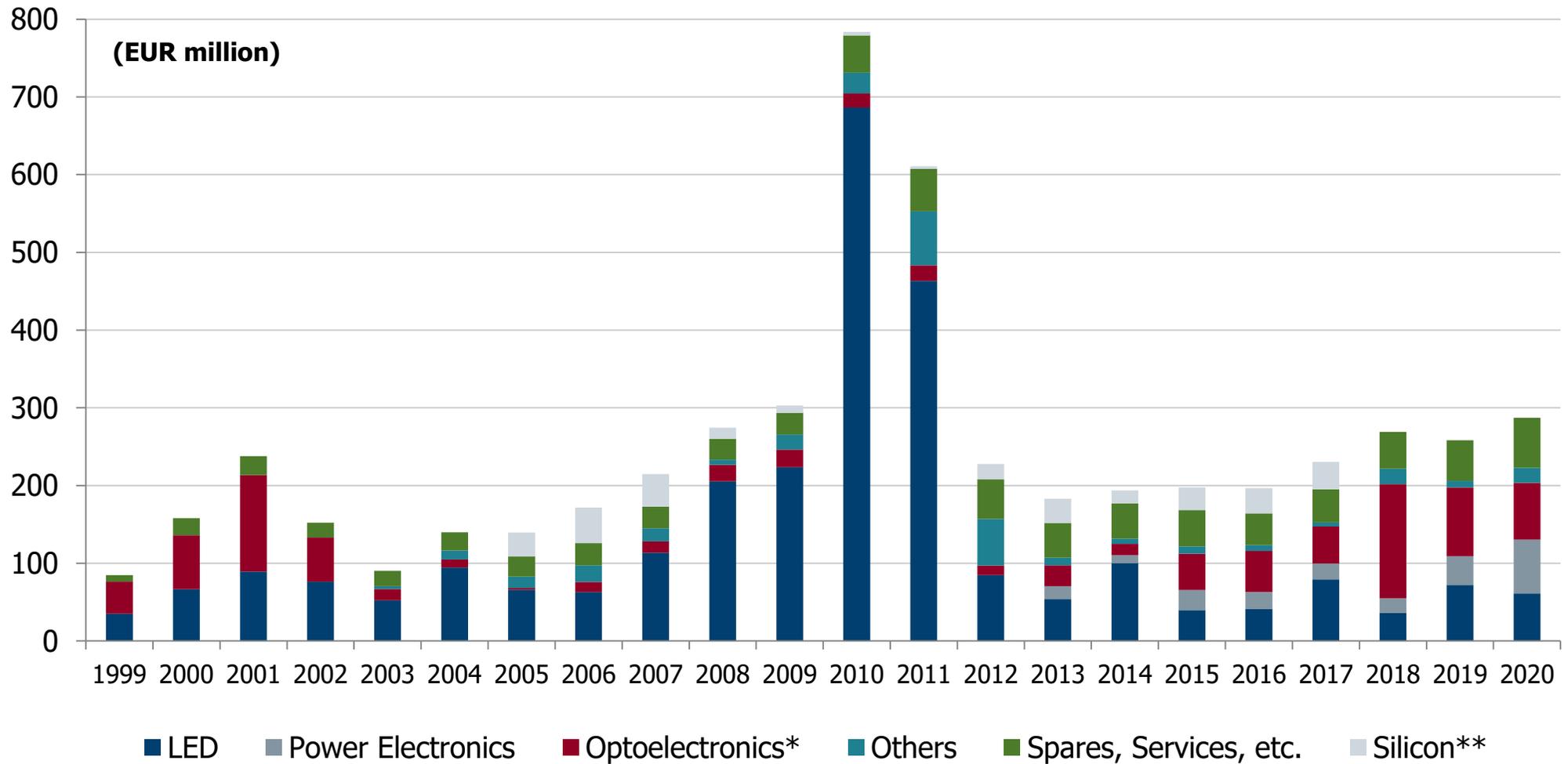


Our *technology*. YOUR FUTURE.

# Demand Drivers on Order Intake per Quarter (Equipment Only)



# Annual Total Revenues by Application (including After Sales)



\* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom and Solar

\*\* Silicon: ALD/CVD product line sold in 2017

# AIXTRON Competitive Landscape

|       |   | USA   | Europe  | China  | Korea  | Japan  |
|-------|---|---|---|--|--|--|
| Opto  | GaAs/InP<br>Optoelectronics,<br>ROY LED |    |   |  |  |  TAIYO NIPPON SANSO<br>The Gas Professionals  |
|       | GaN LED                                 |    |   | <br> |  |  TAIYO NIPPON SANSO<br>The Gas Professionals  |
| Power | GaN Power                               |    |   |  |  |  TAIYO NIPPON SANSO<br>The Gas Professionals  |
|       | SiC Power                               |   |  |  |  |  TEL<br>TOKYO ELECTRON<br> NUFLARE |
| OLED  |   | <br> |   |  |  VAS<br>Your Artistic Solution | CANON TOKKI CORPORATION  |

# Consolidated Income Statement\*

\* Rounded figures; may not add up

| (€ million)                | 2020         | 2019         | 2018         |
|----------------------------|--------------|--------------|--------------|
| <b>Revenues</b>            | <b>269.2</b> | <b>259.6</b> | <b>268.8</b> |
| Cost of sales              | 161.0        | 150.9        | 151.2        |
| <b>Gross profit</b>        | <b>108.3</b> | <b>108.7</b> | <b>117.6</b> |
| %                          | 40 %         | 42 %         | 44 %         |
| Selling expenses           | 9.7          | 9.9          | 9.4          |
| General & admin expenses   | 18.0         | 16.5         | 18.4         |
| R&D                        | 58.4         | 55.0         | 52.2         |
| Net other operating income | (12.6)       | (11.6)       | (3.8)        |
| <b>EBIT</b>                | <b>34.8</b>  | <b>39.0</b>  | <b>41.5</b>  |
| %                          | 13 %         | 15 %         | 15 %         |
| <b>Net result</b>          | <b>34.5</b>  | <b>32.5</b>  | <b>45.9</b>  |
| %                          | 13 %         | 13 %         | 17 %         |

# Balance Sheet\*

\* Rounded figures; may not add up

| (€ million)                               | 31/12/20     | 31/12/19     | 31/12/18     |
|---|--------------|--------------|--------------|
| Property, plant & equipment               | 63.5         | 64.5         | 63.1         |
| Goodwill                                  | 71.0         | 72.4         | 71.6         |
| Other intangible assets                   | 2.9          | 2.4          | 2.1          |
| Others**                                  | 74.9         | 11.7         | 13.3         |
| <b>Non-current assets</b>                 | <b>212.2</b> | <b>151.0</b> | <b>150.1</b> |
| Inventories                               | 79.1         | 79.0         | 73.5         |
| Trade receivables                         | 41.3         | 29.2         | 40.1         |
| Others                                    | 8.1          | 5.4          | 11.5         |
| Cash & Cash Deposits & Investments        | 249.7        | 298.3        | 263.7        |
| <b>Current Assets</b>                     | <b>378.2</b> | <b>412.0</b> | <b>388.8</b> |
| <b>Equity</b>                             | <b>496.4</b> | <b>464.1</b> | <b>429.7</b> |
| <b>Non-current liabilities</b>            | <b>6.6</b>   | <b>4.5</b>   | <b>1.8</b>   |
| Trade payables                            | 10.8         | 19.4         | 27.8         |
| Contract liabilities for advance payments | 50.8         | 51.1         | 53.3         |
| Others                                    | 25.8         | 23.9         | 26.3         |
| <b>Current liabilities</b>                | <b>87.5</b>  | <b>94.3</b>  | <b>107.4</b> |
| <b>Balance Sheet total</b>                | <b>590.4</b> | <b>563.0</b> | <b>538.9</b> |

\*\* Includes cash deposits of EUR 60m in Q4/2020

## Consolidated Statement of Cash Flows\*

\* Rounded figures; may not add up

| (€ million)                                   | 2020  | 2019  | 2018  |
|---|-------|-------|-------|
| Cash Flow from operating activities           | -39.2 | 42.8  | 11.9  |
| Cash Flow from investing activities           | -41.5 | -6.8  | -15.1 |
| Cash Flow from financing activities           | -0.9  | -1.2  | 10.4  |
| Exchange rate changes                         | -2.0  | -0.1  | 2.4   |
| Net change in Cash & Cash Equivalents         | -83.6 | 34.6  | 9.7   |
| Cash & Cash Equivalents (beginning of period) | 270.8 | 236.2 | 226.5 |
| Cash & Cash Equivalents (end of period)       | 187.3 | 270.8 | 236.2 |
| Change in Cash deposits                       | 32.5  | 0.0   | 7.5   |
| Free Cash Flow                                | 14.0  | 35.1  | 4.4   |
| Capex   | 9.3   | 7.7   | 9.2   |

## Financial Calendar & Contact Data

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- April 29, 2021 Q1/2021 Results, Conference Call
- May 19, 2021 Virtual Annual General Meeting
- July 29, 2021 H1/2021 Results, Conference Call
- November 04, 2021 9M/2021 Results, Conference Call
- February 24, 2022 FY 2021 Results, Conference Call

For further information please contact:

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