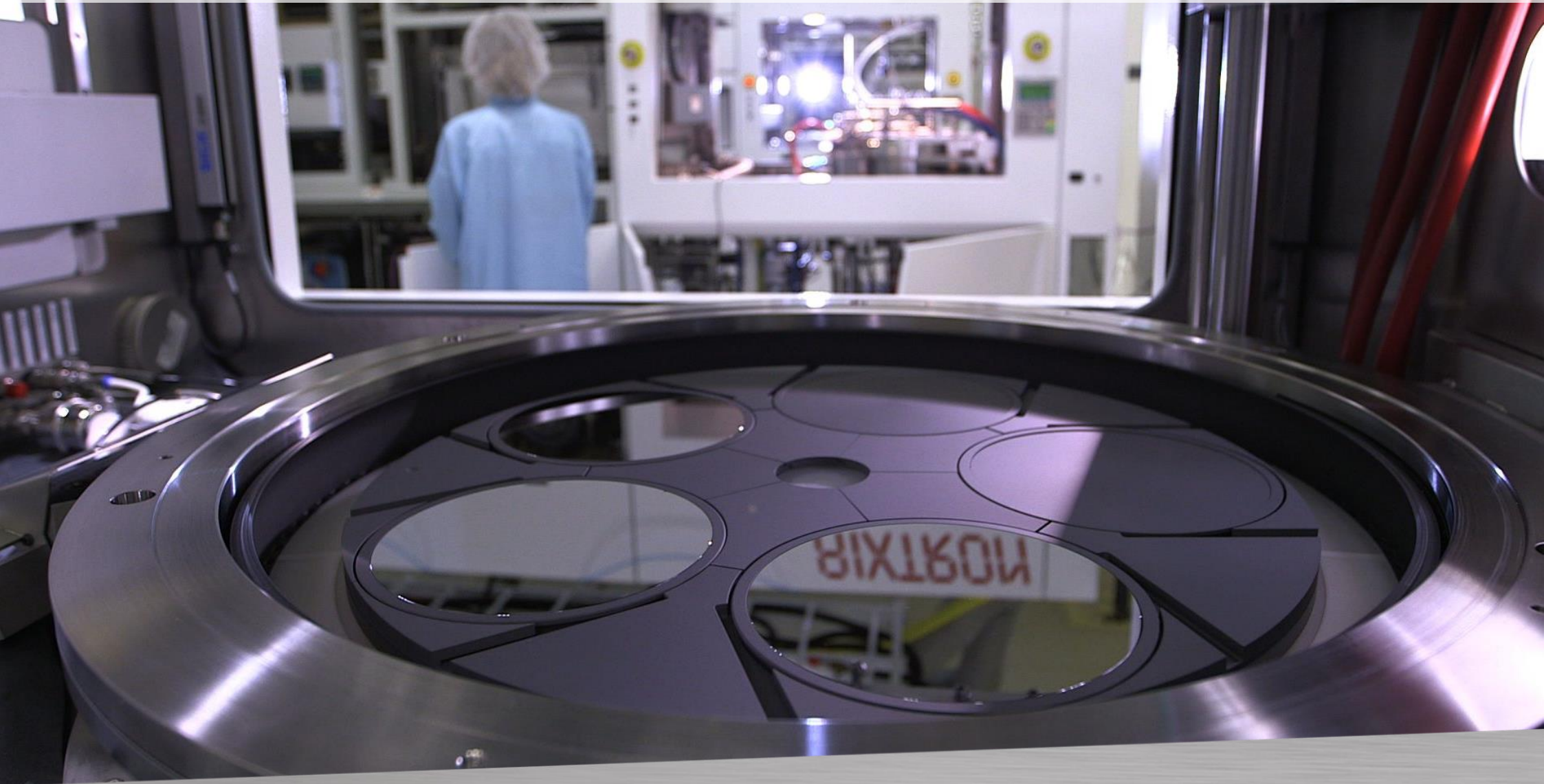


AIXTRON Investor Presentation



IR Presentation - Full Year 2020

Forward-Looking Statements

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®, AIXTRON®, APEVA®; Atomic Level SolutionS®, Close Coupled Showerhead®, CRIUS®, EXP®, EPISON®, Gas Foil Rotation®, Optacap™, OVPD®, Planetary Reactor®, PVPD®, STExS®, TriJet®

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
- ~ 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

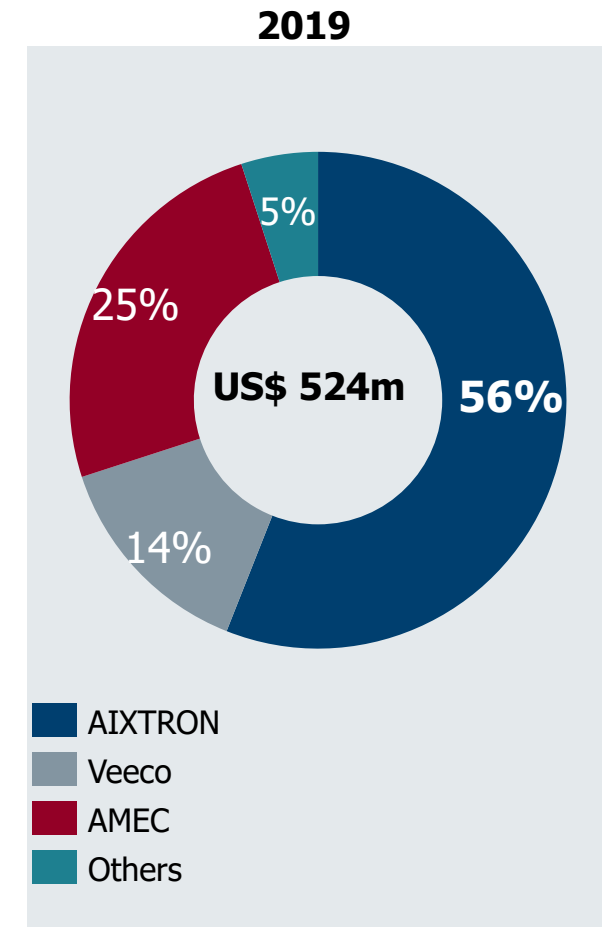
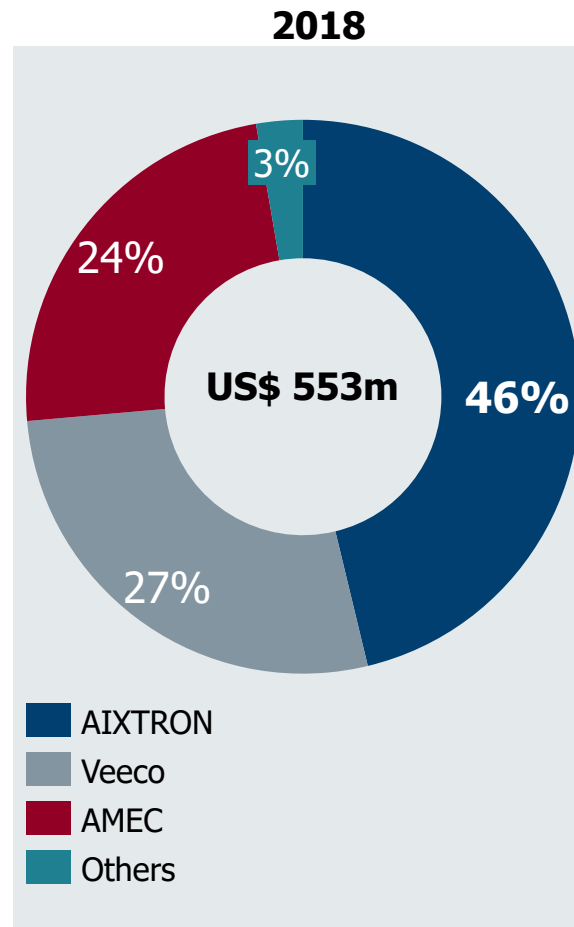
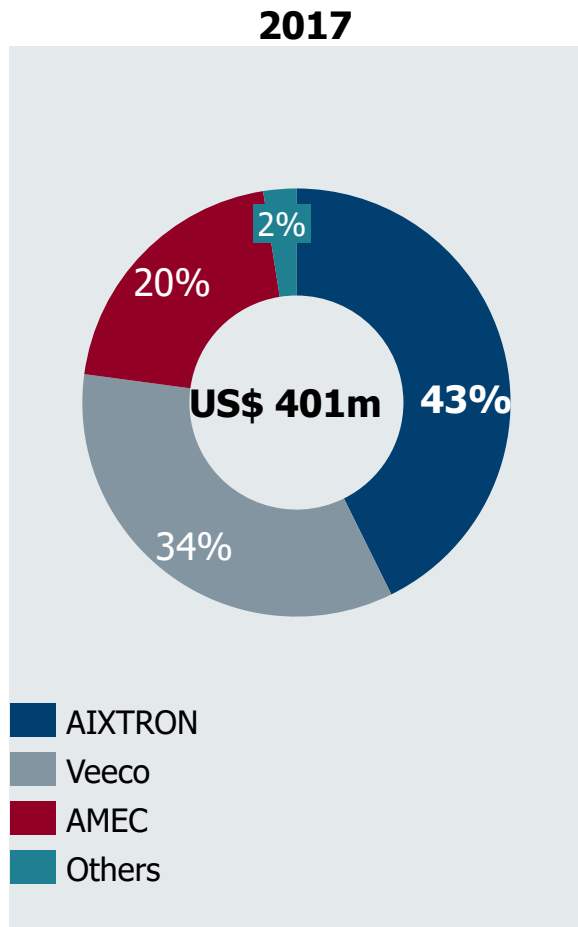
- **Metal-Organic Chemical Vapor Deposition (MOCVD)** for the deposition of compound materials to produce for instance Lasers, LEDs, GaN and SiC Power Electronics or other Optoelectronic components
- **Plasma-enhanced Chemical Vapor Deposition (PECVD)** for the deposition of Carbon Nanostructures and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

Our MOCVD Market Position



Source: Gartner (2017; 2018), Company reports, AIXTRON estimates

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

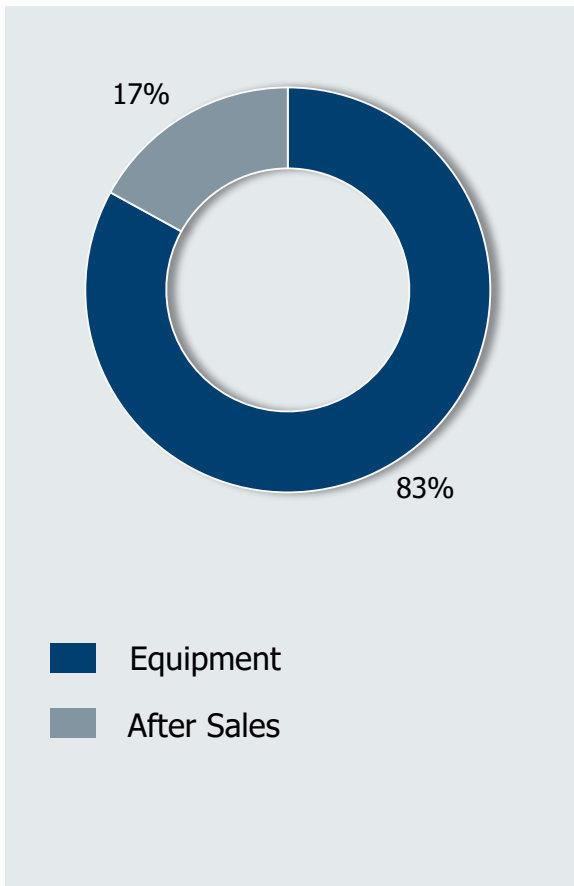
MOCVD Core Technology



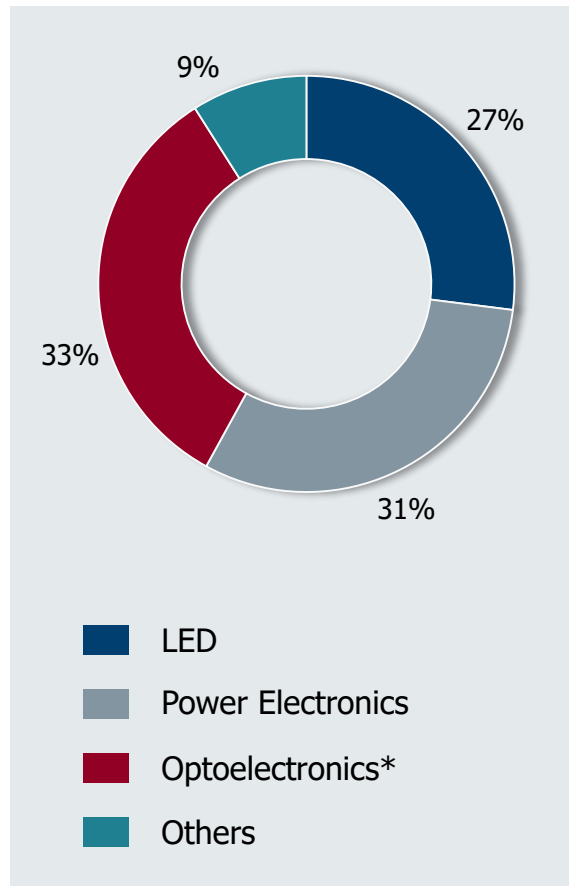
Revenue Analysis*

* Rounded figures; may not add up

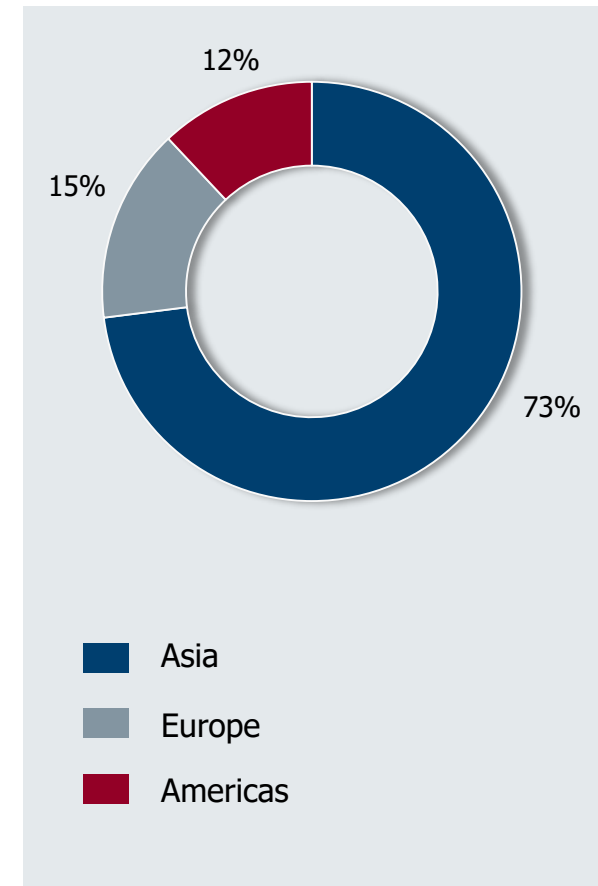
FY 2020:
by equipment & after sales



FY 2020:
by end application
(equipment only)



FY 2020:
by region

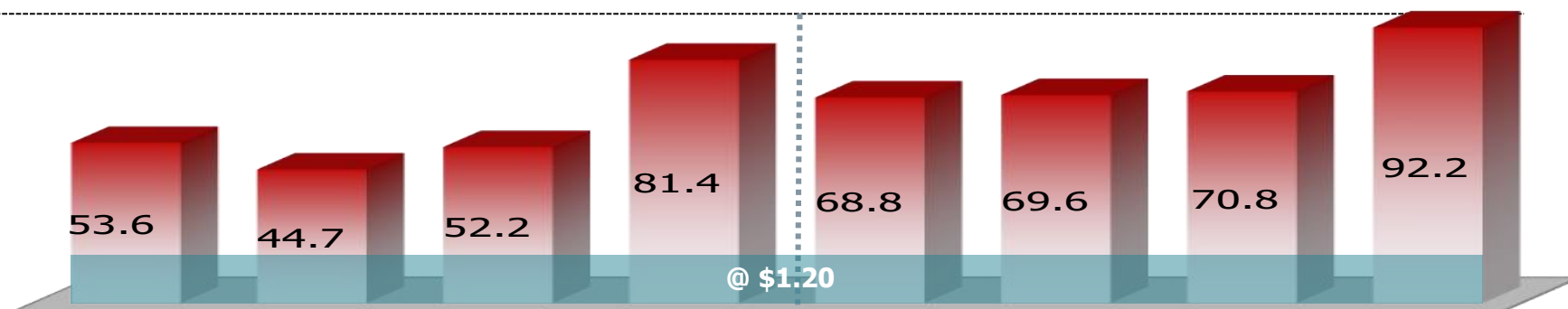


* Optoelectronics includes applications in Consumer Optoelectronics, Telecom/Datacom and Solar

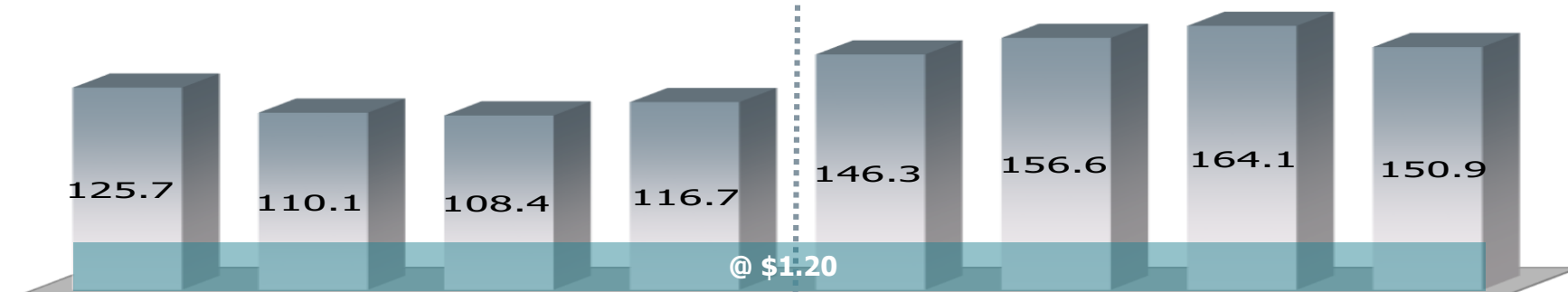
24 - Month Business Development (Q1/2019 – Q4/2020)

(€ million)

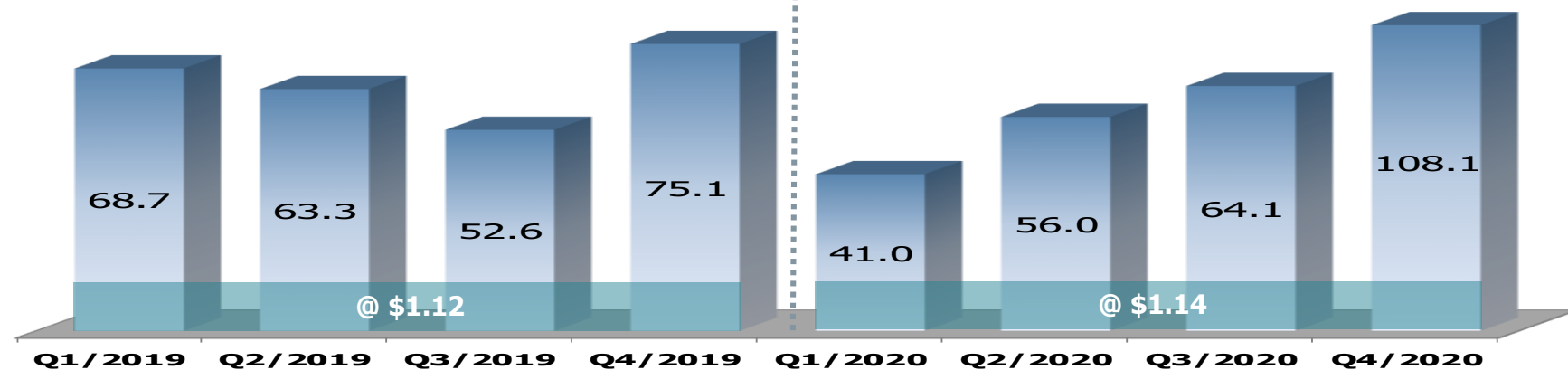
Order Intake
(incl. Equipment & After Sales)



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/€)

USD revenues were converted at the actual period average FX rate (2019: \$1.12/€; 2020: \$1.14/€)

Consolidated Income Statement*

* Rounded figures; may not add up

(€ million)	FY/20	FY/19	+/- %	Q4/20	Q3/20	+/- %
Revenues	269.2	259.6	4	108.1	64.1	69
Cost of Sales	161.0	150.9	7	63.1	38.4	64
Gross profit	108.3	108.7	0	45.0	25.8	75
%	40	42	-2 pp	42	40	2 pp
Selling expenses	9.7	9.9	-2	2.4	1.9	26
General & admin expenses	18.0	16.5	9	4.2	4.4	-5
R&D	58.4	55.0	6	17.2	12.6	37
Net other operating income	(12.6)	(11.6)	9	(3.3)	(1.2)	175
EBIT	34.8	39.0	-11	24.5	8.2	199
%	13	15	-2 pp	23	13	10 pp
Net result	34.5	32.5	6	24.9	7.1	250
%	13	13	-	23	11	12 pp

Balance Sheet*

* Rounded figures; may not add up

(€ million)	31/12/20	31/12/19	30/09/20
Property, plant & equipment	63.5	64.5	66.9
Goodwill	71.0	72.4	71.2
Other intangible assets	2.9	2.4	2.7
Others	74.9	11.7	41.8
Non-current assets	212.2	151.0	182.7
Inventories	79.1	79.0	101.6
Trade receivables	41.3	29.2	19.0
Others	8.1	5.4	10.9
Cash, Cash deposits & Investments	249.7	298.3	262.8
Current assets	378.2	412.0	394.3
Equity	496.4	464.1	471.4
Non-current liabilities	6.6	4.5	4.8
Trade payables	10.8	19.4	14.7
Advance payments from customers	50.8	51.1	63.2
Others	25.8	23.9	22.9
Current liabilities	87.5	94.3	100.8
Balance Sheet total	590.4	563.0	577.0

Consolidated Statement of Cash Flows*

* Rounded figures; may not add up

(€ million)	FY/20	FY/19	Q4/20	Q3/20
Net Result	34.5	32.5	24.9	7.1
Adjust for				
Non-Cash Items	8.0	13.1	2.0	3.2
Changes in Working Capital	(19.2)	(2.8)	(8.5)	(2.2)
Cash Flow from Operating Activities**	23.3	42.8	18.4	8.1
Capital Expenditures/Disposals	(9.3)	(7.7)	(1.1)	(3.0)
Free Cash Flow	14.0	35.1	17.3	5.0
FX Effects	(2.0)	(0.1)	(0.2)	(0.7)
Cash, financial investments & deposits	309.7	298.3	309.7	292.8

2019 figures reflect the changed presentation of cash flow in the 2019 Annual Report

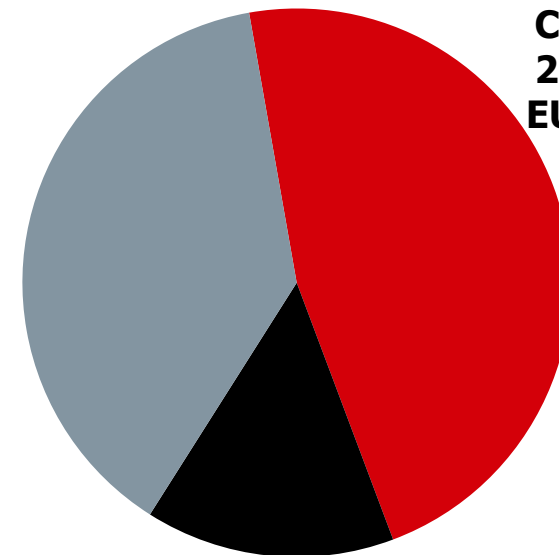
**Excludes changes in financial assets

AIXTRON 2021 Guidance* – Strong Growth Expected

Based on current order situation,
Management expects for 2021**:

- **Total Order Intake** between EUR 340 ~ 380 million
- **Revenues** between EUR 320 ~ 360 million
- **Gross Margin** of ~40%
- **EBIT Margin** of ~16%

Equipment Order Backlog convertible into 2021 Revenues as of January 1, 2021: ca. EUR 130m



2021 Equipment Order Intake Convertible into 2021 Revenues: EUR 140 ~ 180m

2021 Estimated Revenues from After Sales: ca. EUR 50m

* Based on 1.25 USD/EUR Budget Rate; for more information please refer to the AIXTRON 2020 Annual Report, "Expected Results of Operations and Financial Position"

** Assuming that the COVID-19 pandemic will continue not to have a significant impact on the business

Market Prospects

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.

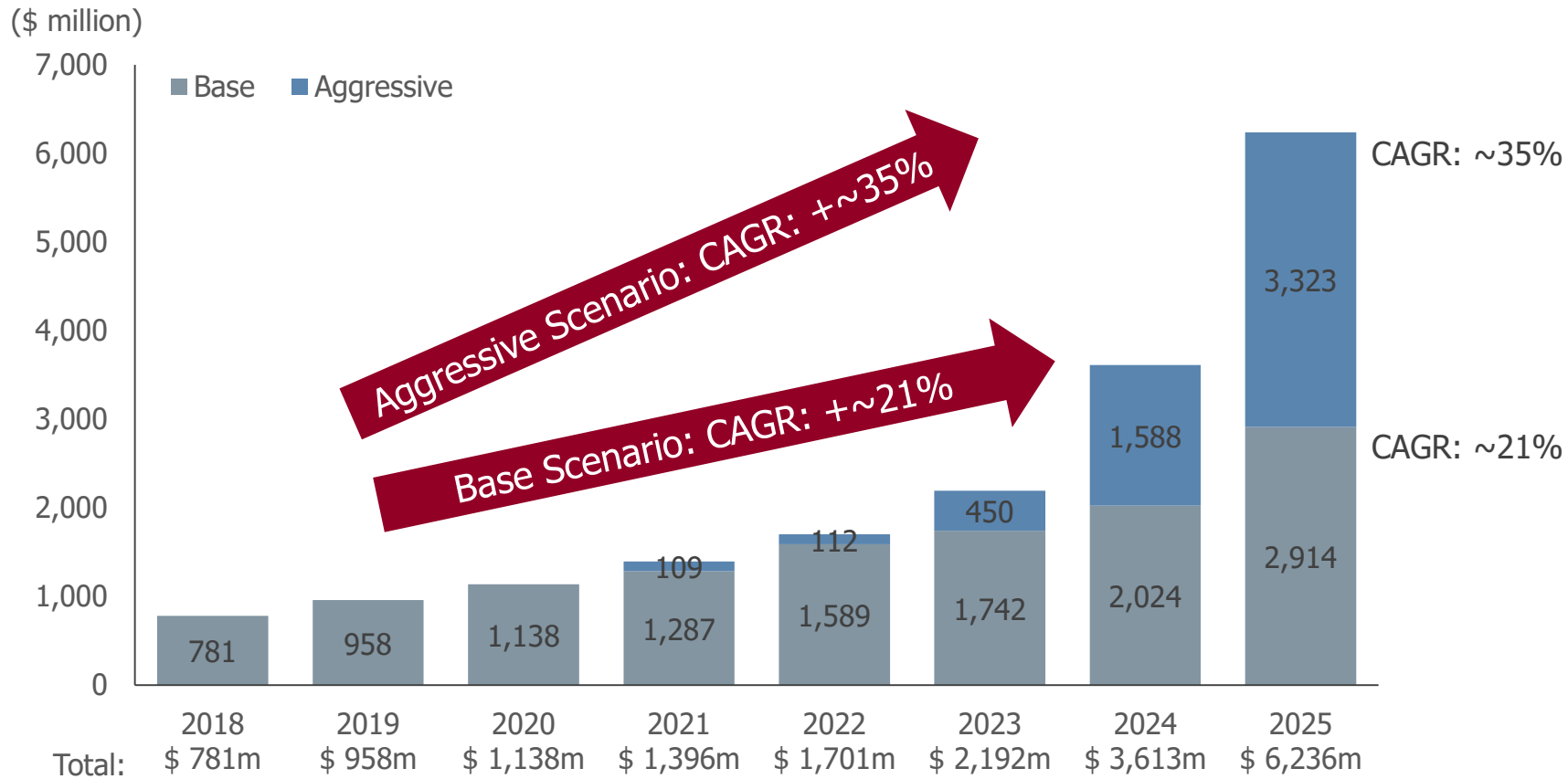
Mid- to Long-Term

- 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.

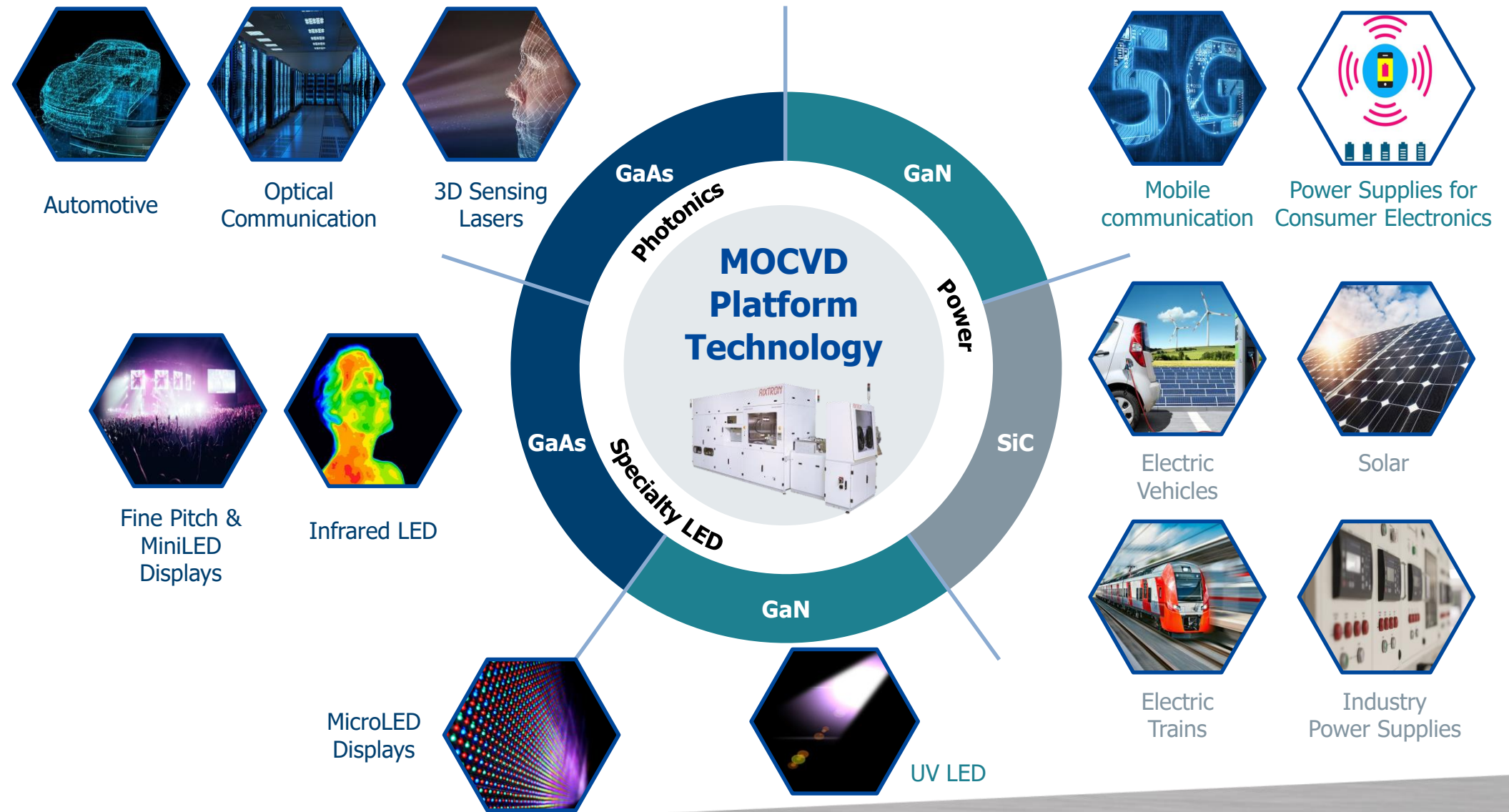
Epitaxial Growth Equipment Market Forecast*

* 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[®]: 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

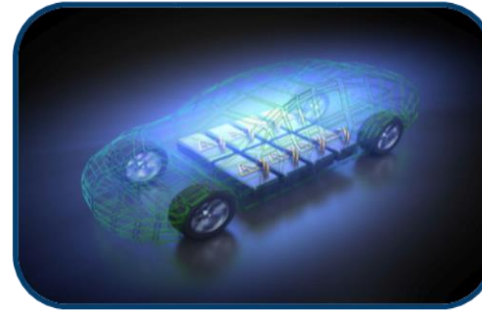
Less Heat

Light Weight

Lower System Cost



Smaller



Electric Vehicles



EV-charging



Data Centers



Renewable Energy








Wireless Charging



Fast Charging

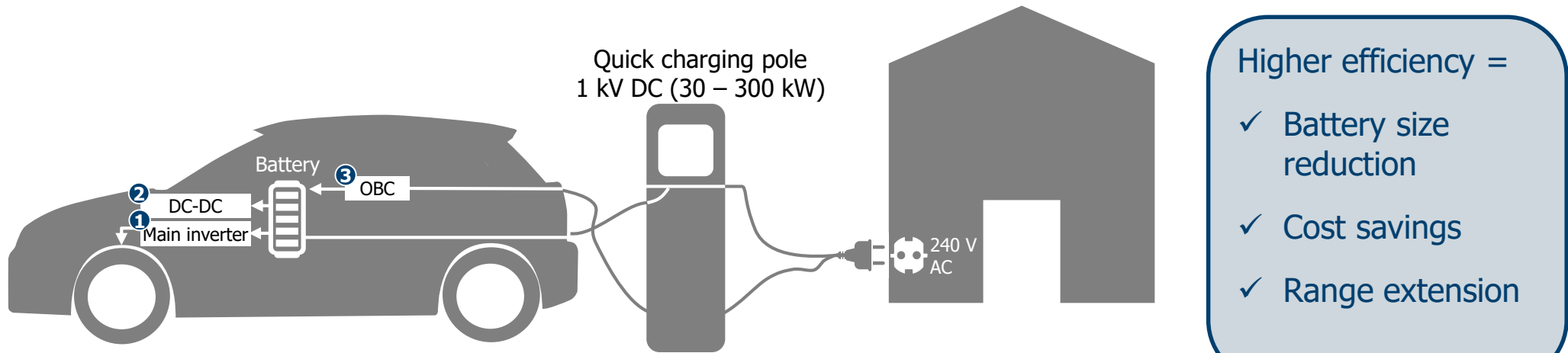
Overview: GaN/SiC as Wide Band Gap (WBG) Power Electronics

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

Low to Medium Voltages

Medium to High Voltages

SiC in Automotive : Main Inverter as the Major Market Opportunity



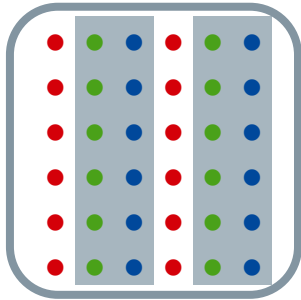
Component	Power (kW)	Fraction 6" wafer*	Comment
Main inverter	20 ~ 150	0.1 ~ 0.5	Brings energy from battery to the electric motor
DC-DC Converter	1 ~ 3	<0.01	Brings energy from battery for car electronics
On Board Charger (OBC)	5 ~ 30	0.01	Brings 240 V AC energy from wall plug to battery
(Quick) Charging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

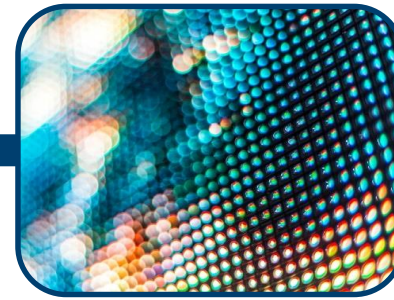
RGB* LED DISPLAYS



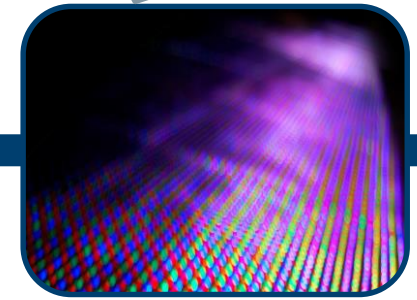
Stadium Outdoor Display
(Pixel Pitch $\geq 10\text{mm}$)
(Chip size: $\geq 200\mu\text{m}$)



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

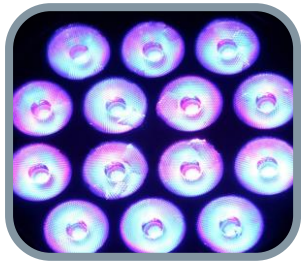


MiniLED for Consumer Electronics
(Chip size: $\leq 200\mu\text{m}$)



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

Initial Introduction Expected



UV LED



Curing



Water Disinfection

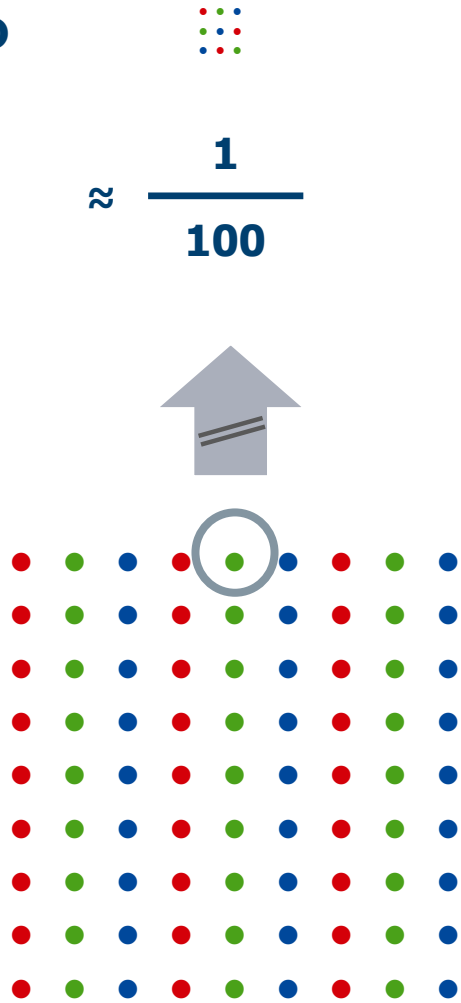


Air Purifier

*RGB = Red, Green & Blue

Devices: Micro LED – The Perfect Future Display Technology

RGB*
Micro LED
Display



RGB*
LED
Display

Self-Emissive

Low Power
Consumption

Perfect
Contrast

High
Brightness

Fast
Response

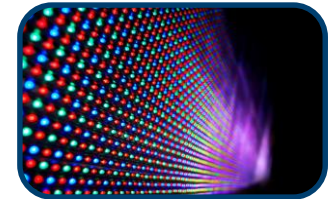
Source: LEDinside



Wearables



AR/VR



Signage



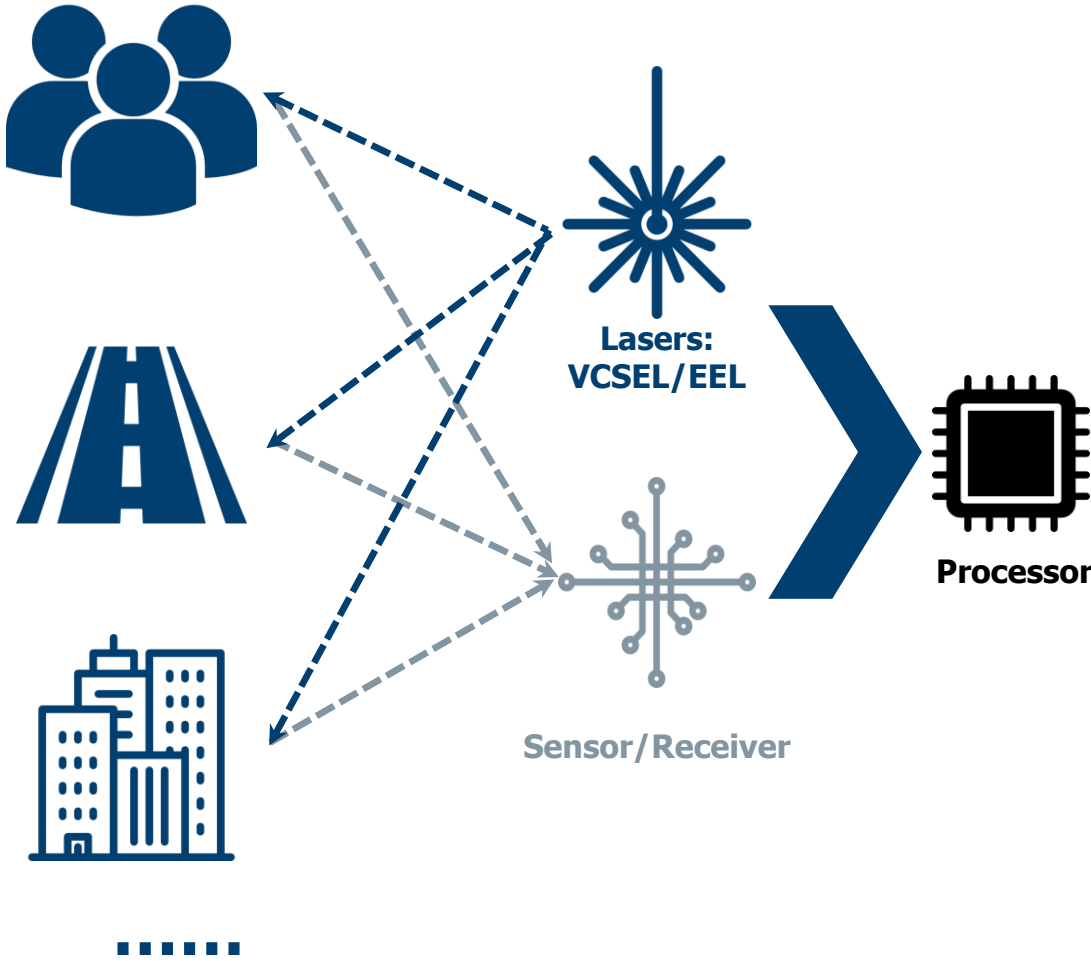
Smartphones/Tablets/TVs

*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

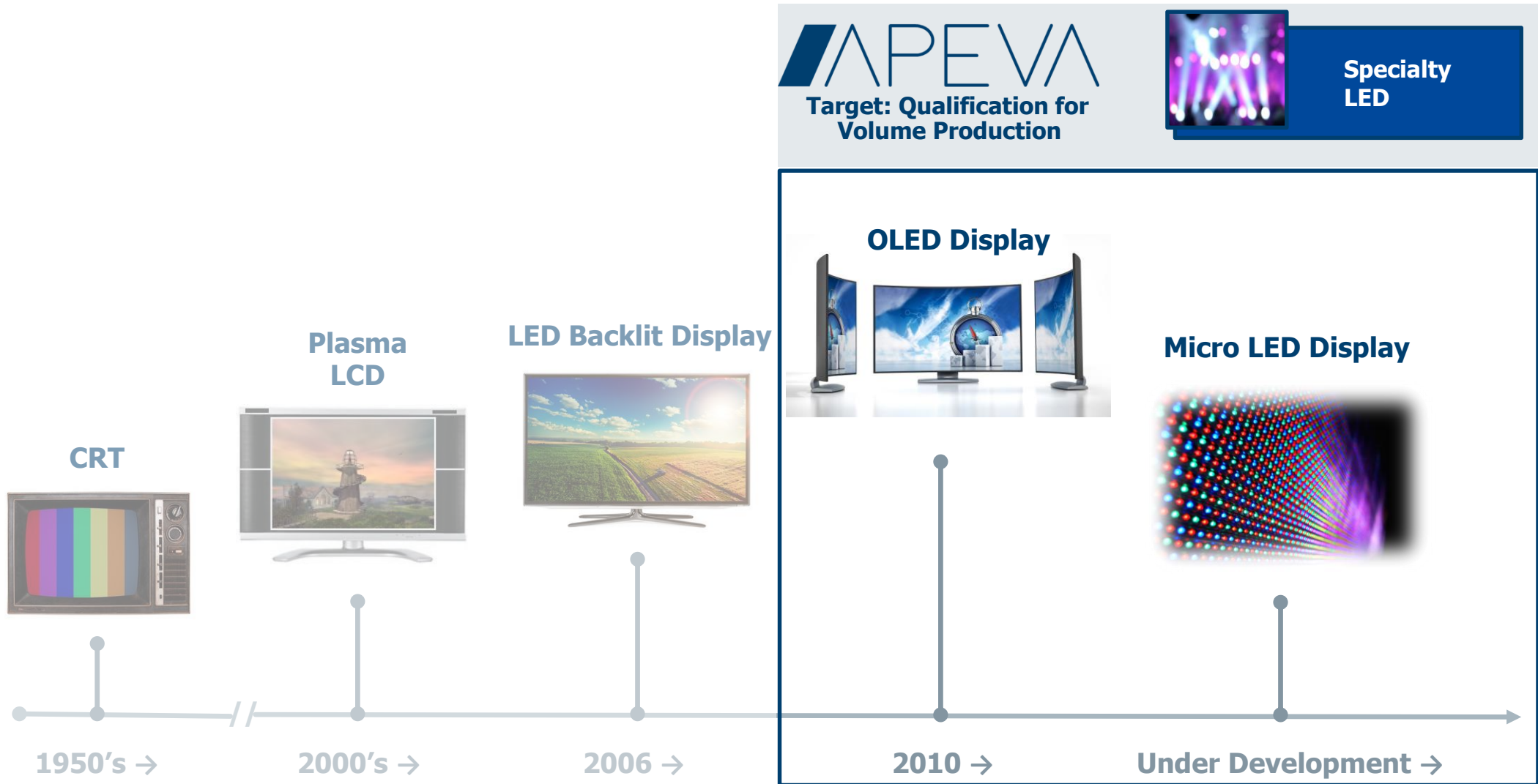


Mapping



Industry 4.0

AIXTRON – Instrumental in Evolving Display Technologies



APEVA: OLED Deposition System Provider



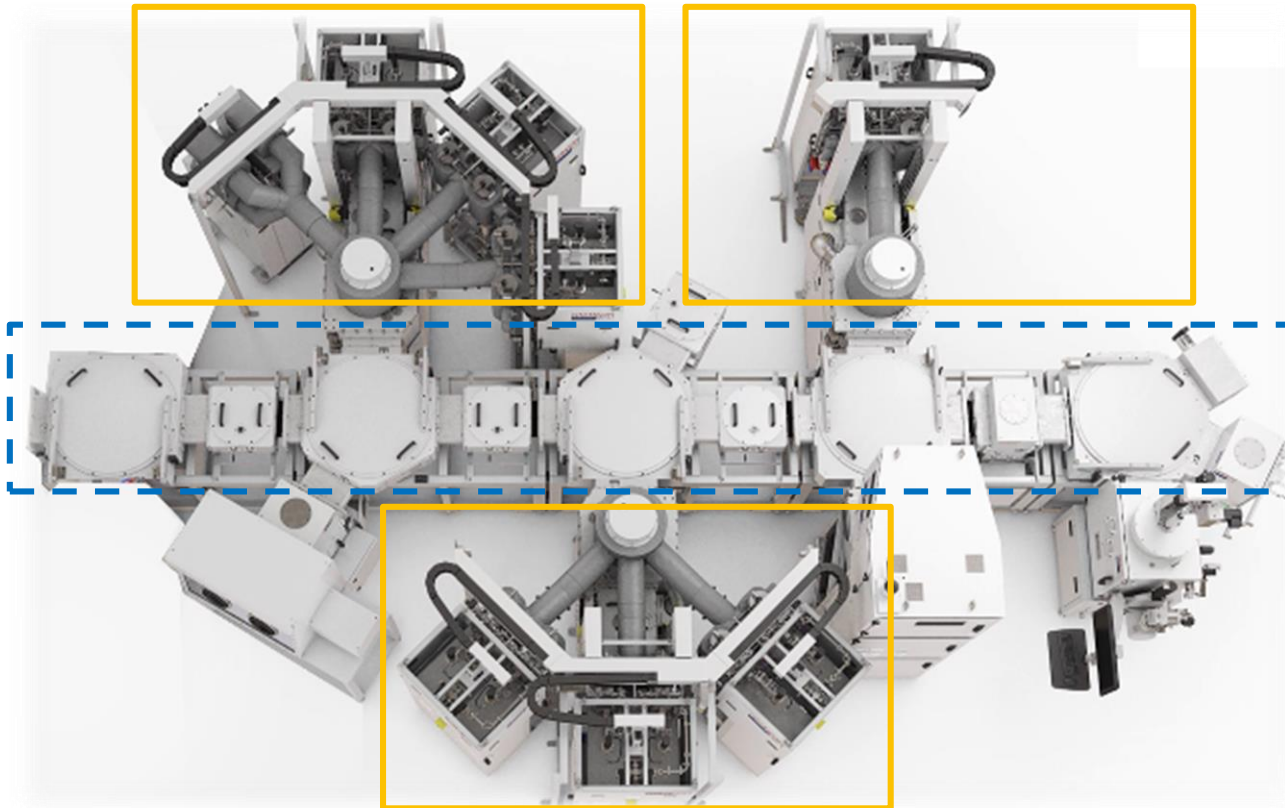
OVPD Deposition Line*

 OVPD Deposition



 Automation & Handling





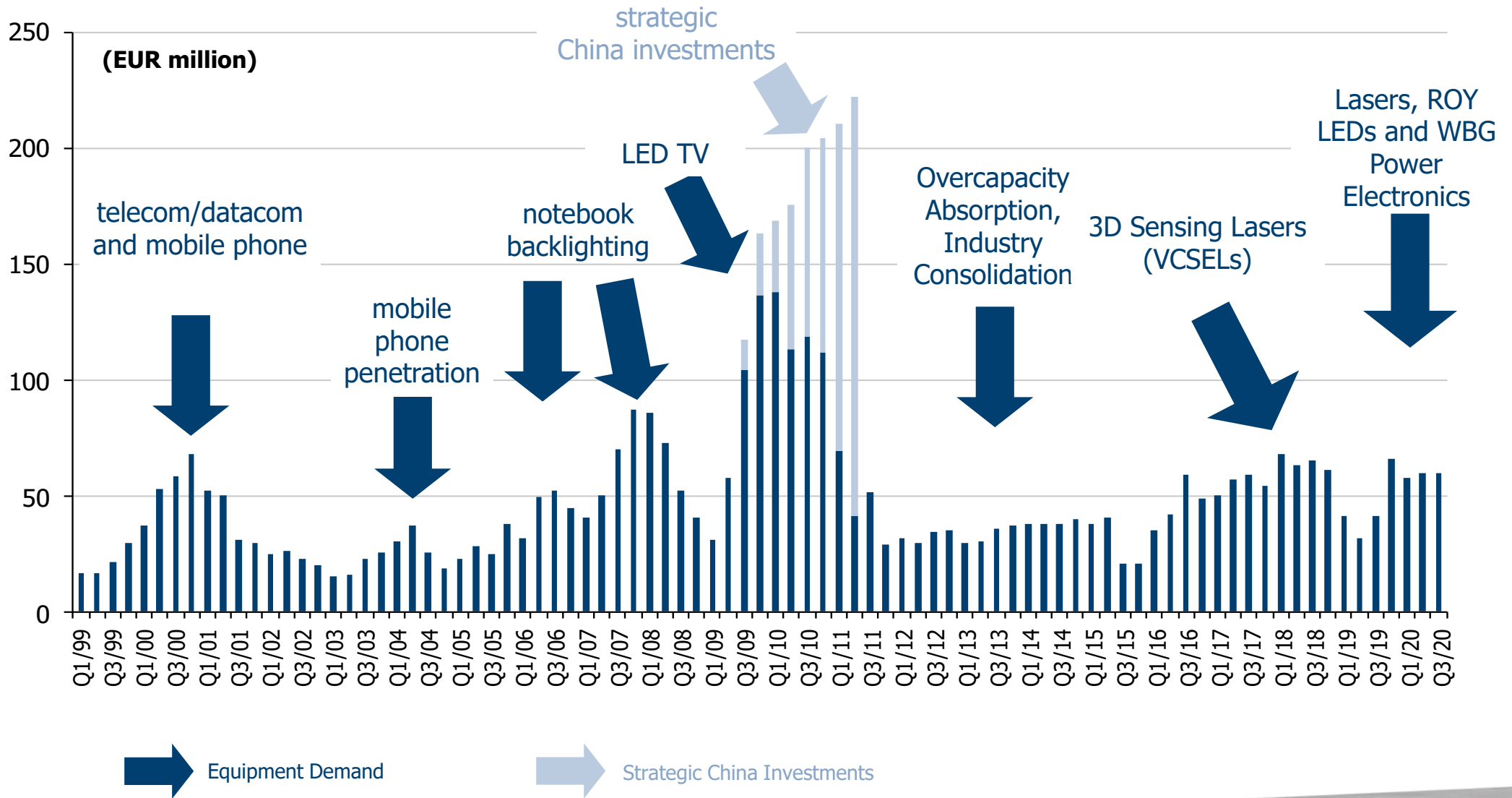
- Fully Automated OLED Deposition Lines and Fab Integration as a Complete System Provider
- Innovative Deposition Technology with
 - Higher Efficiency of OLED Material Deposition
 - Mixing and Doping of Materials via Multiple Material Deposition in One Chamber
 - Maintaining the Delicate Organic Material Properties improving Lifetime

* Pictures shown are for illustration purpose only

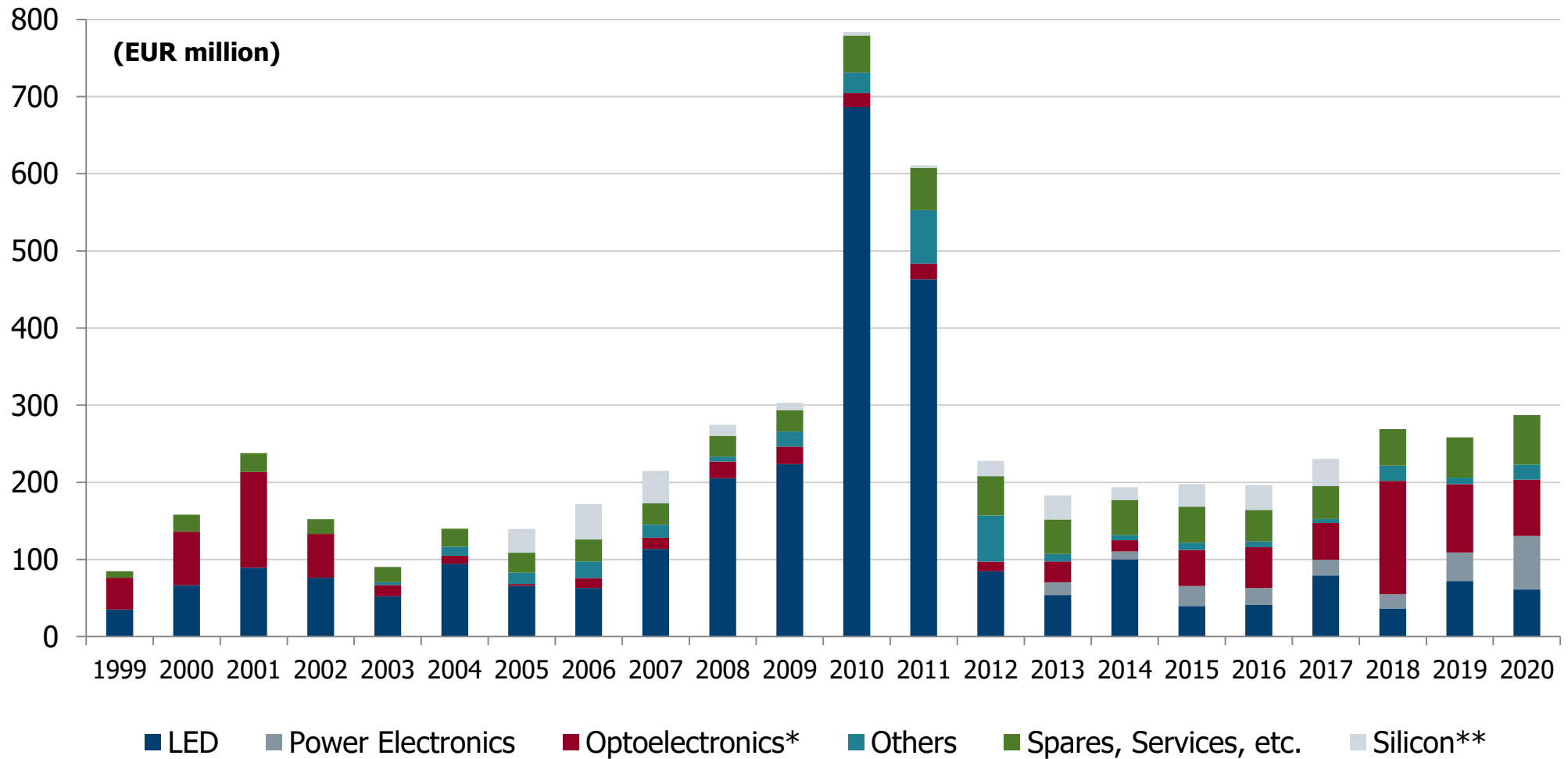


Our *technology*. YOUR FUTURE.

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 Optoelectronics, ROY LED					 TAIYO NIPPON SANSO The Gas Professionals
	GaN LED			 		 TAIYO NIPPON SANSO The Gas Professionals
Power	GaN Power					 TAIYO NIPPON SANSO The Gas Professionals
	SiC Power					 TEL TOKYO ELECTRON  NuFLARE
OLED		 APPLIED MATERIALS  kateeva			 VAS Your Artistic Solution	CANON TOKKI CORPORATION

Consolidated Income Statement*

* Rounded figures; may not add up

(€ million)	2020	2019	2018
Revenues	269.2	259.6	268.8
Cost of sales	161.0	150.9	151.2
Gross profit	108.3	108.7	117.6
%	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)
EBIT	34.8	39.0	41.5
%	13 %	15 %	15 %
Net result	34.5	32.5	45.9
%	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
Non-current assets	212.2	151.0	150.1
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
Current Assets	378.2	412.0	388.8
Equity	496.4	464.1	429.7
Non-current liabilities	6.6	4.5	1.8
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
Current liabilities	87.5	94.3	107.4
Balance Sheet total	590.4	563.0	538.9

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

- 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

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AIXTRON – Our technology. Your future.

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AIXTRON