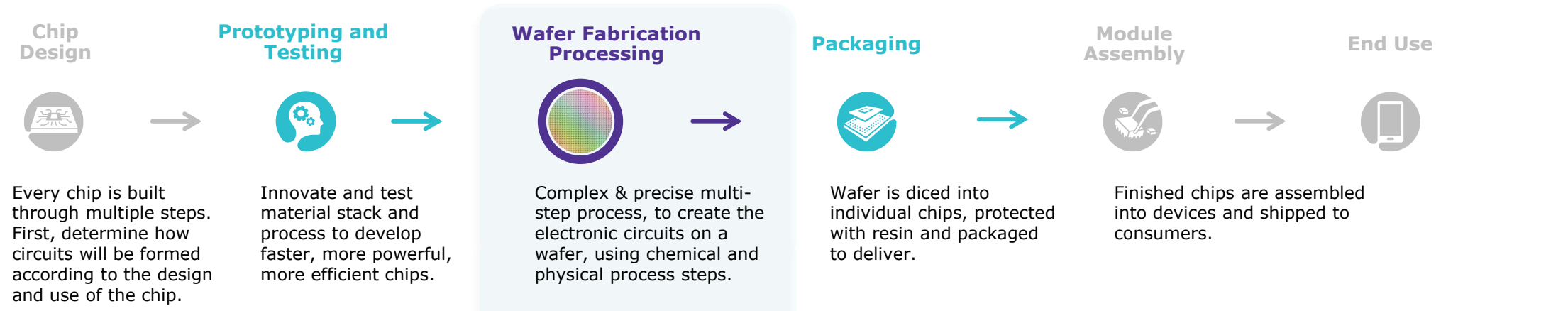


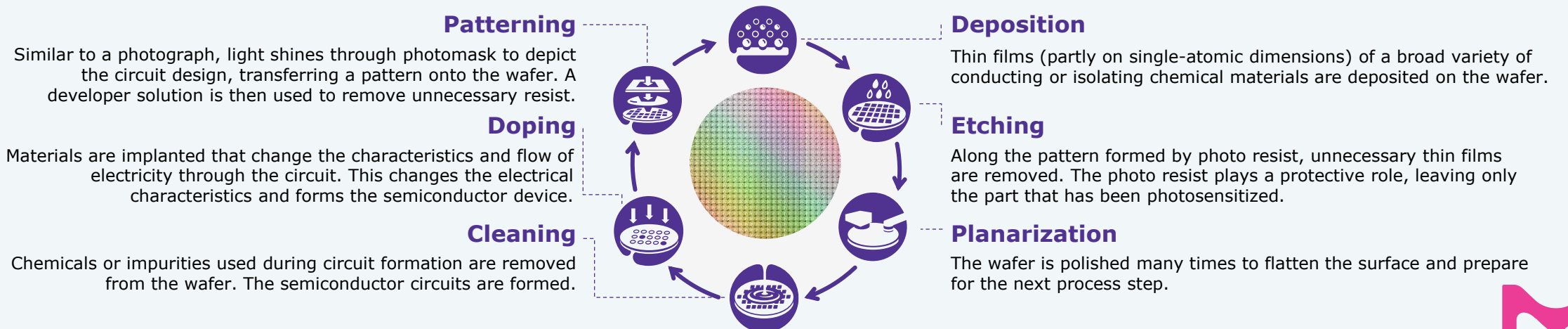
# Semiconductor Solutions

## Each wafer fabrication process is enabled by advanced materials

Company is a **critical enabler** of the end-to-end semiconductor chip manufacturing lifecycle



Group's **materials expertise** unlocks quality and precision in every step of the wafer process



# Semiconductor Solutions

## Innovation pipeline aligned to tech roadmap enables future growth

### Innovation focus on winning new Process of Records with annuity income



Typical **2-6 year material development cycle** from identification to commercialization, with patented IP



Materials are developed with customer R&D, technical and manufacturing teams, aligned to their tech roadmap



After material **validation** and demonstrated **proof of concept**, customer **specifies** a novel material in a **PoR**<sup>1</sup>



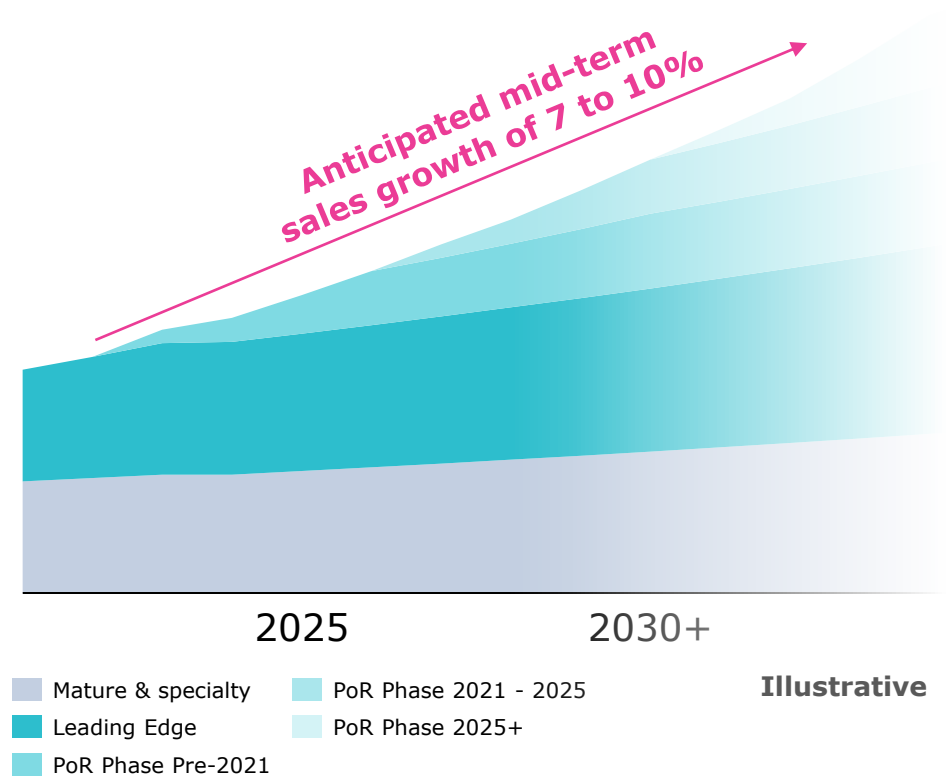
As customers execute the roadmap and ramp-up production of new chips, Group **generates respective materials sales**

Additionally, partnerships are formed with OEMs<sup>2</sup> via BKMs<sup>2</sup> where processes are defined as a current standard

Electronics invests ~7-8% of sales in R&D with the majority in Semiconductor Solutions

### Group delivers highly innovative solutions for complex customer problems

### Attractive pipeline of semi materials and the equipment needed to deliver them



1) PoR = Process of Record, which are documents and/or systems that specify a series of operations that a semiconductor wafer must process through;  
2) working with original equipment manufacturers or tool makers (OEMs) sets standard across multiple material applications via Best Known Methods (BKMs)



# Semiconductor Solutions

## Growth megatrends drive demand for wafers and fab materials

More applications cause **explosion in data...**

**AI / ML<sup>1</sup> accelerators**

Sensors / IoT<sup>2</sup>

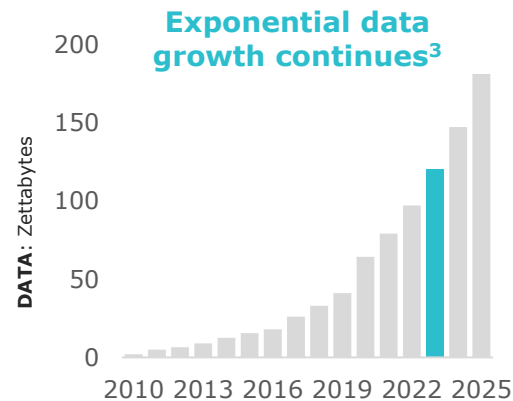
Wearables & devices

**Generative AI**  
(e.g. ChatGPT)

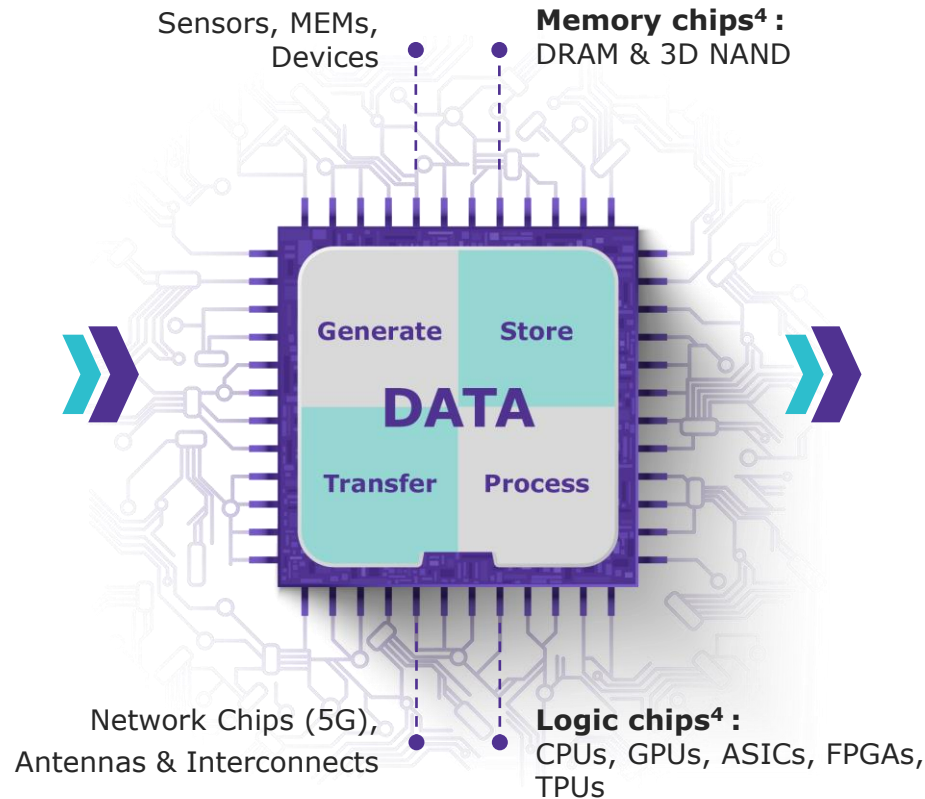
Blockchain

Automotive

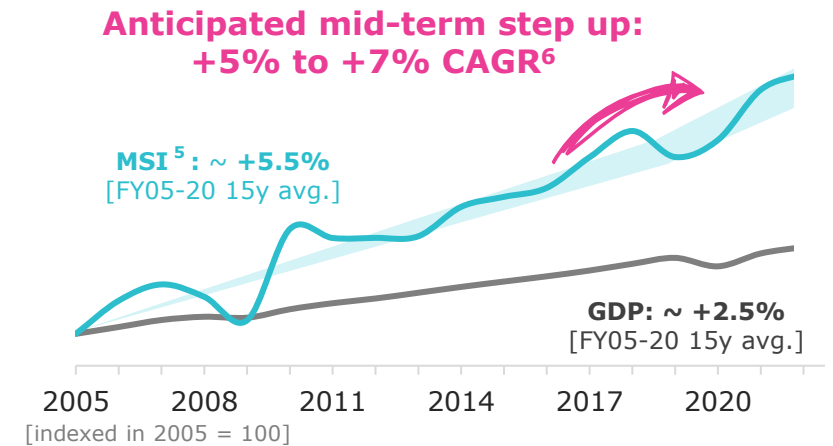
Cloud & big data



...which requires **more powerful chips...**



...driving **wafer volume step up**



**Our portfolio is mission critical for the wafer fabrication process on which chips are built**

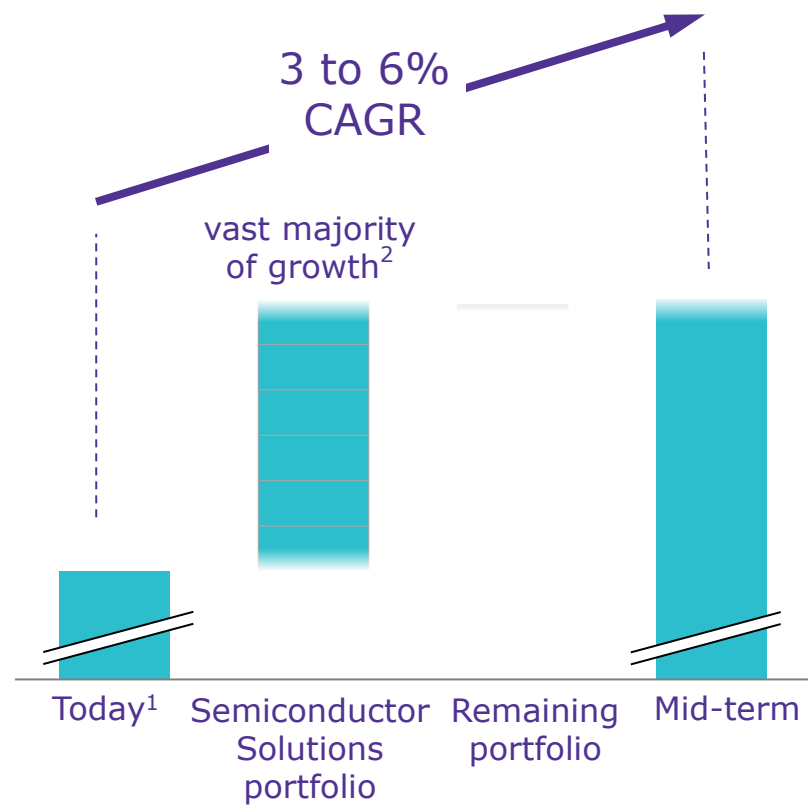
1) AI / ML = artificial intelligence / machine learning; 2) IoT = internet of things; 3) Statista; 4) DRAM = dynamic random-access memory, NAND = NOT AND, CPU = central processing unit, GPU = graphics processing unit, ASIC = application-specific integrated circuit, FPGA = field programmable gate arrays, and TPU = tensor processing unit; 5) MSI = million square inches of silicon wafers; 6) company estimates



# Continued progress on “Level Up” as market reaches inflection point

 **A leading player**

**Investing in “Level-up<sup>4</sup>” program to build the innovation and production capacity to support secular growth in Semiconductors**



Illustration

## Semiconductor Solutions

CAGR of 7% to 10% driven by +200 to +300bps<sup>3</sup> growth above MSI (5% to 7%)

## Display Solutions

CAGR of low single-digit decline

## Surface Solutions

Low single-digit growth CAGR

## Delivering on Level Up

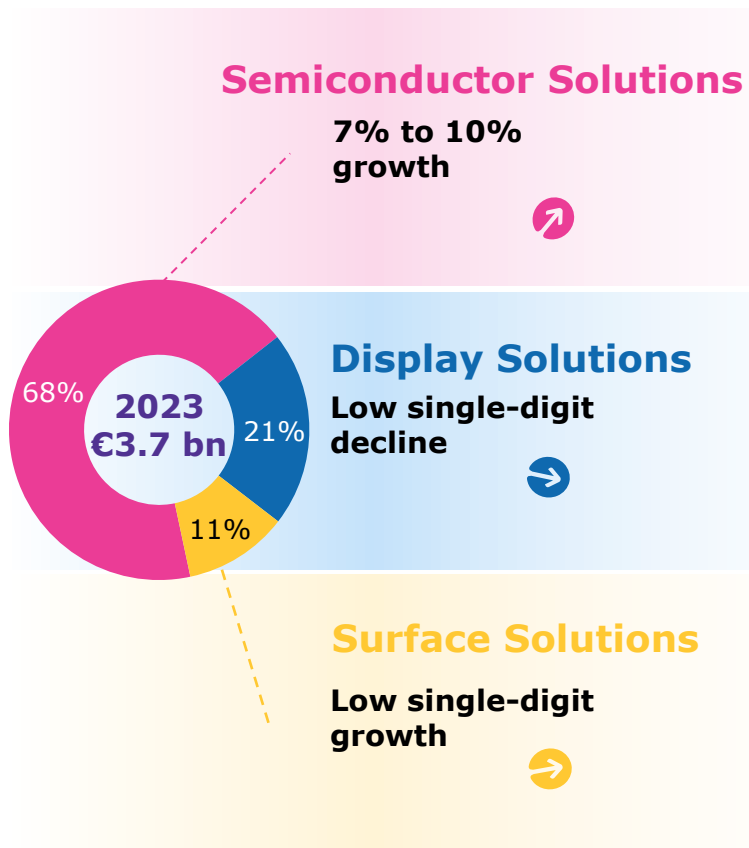
- Major capacity expansions in sync with customer CAPEX
- R&D investment alongside efficient OPEX scaling
- Highly complementary bolt-on acquisitions

1) Today defined as of 01 Jan 2023; 2) Illustrative split by semiconductor solutions technology platform; 3) Basis points; 4) As announced in press released dated 20.09.2021



# Leveraging portfolio transition to enable 3% to 6% growth CAGR

## Sales split<sup>1</sup>



## Mid-term outlook<sup>2</sup>

### Semiconductor Solutions

7% to 10% growth



### Display Solutions

Low single-digit decline

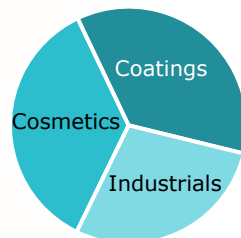
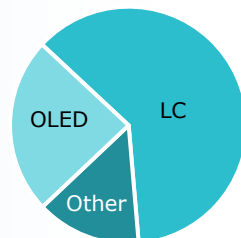
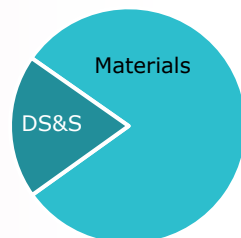


### Surface Solutions

Low single-digit growth



## Business Split<sup>3</sup>



## Fundamental growth drivers

- Continued market growth due to technological advances that generate, transfer, store and process more data (AI / ML, 5G, Big Data and cloud, IoT) serving customers in **Logic, Memory, Packaging and others**
- 5 to 7%** market growth<sup>4</sup>
- Outperform market by **+200 to +300bps**: more material content per wafer, comprehensive portfolio and strategic partner to customers
- Driven by trend to **bigger TV size, higher resolutions, more devices** (inc. mobile, AR & VR)
- 2 to 5% growth of total LCD m<sup>2</sup> area<sup>5</sup>, while price pressure continues
- 10 to 15% growth of total OLED m<sup>2</sup> area<sup>5</sup> with slight to moderate market share gains
- OLED material market exceeded LC market for first time in 2022<sup>6</sup>
- Well balanced exposure to **coatings, cosmetics** and **industrials** end markets
- Drivers: rising living standards, higher disposable income in growing markets & higher demand for high value products at reasonable prices
- Light vehicle recovery delayed with shortages; expected to reach 2019 levels around 2024 as shortages ease<sup>7</sup>; electric transition issues remain
- Relevant cosmetics end markets already well<sup>8</sup> above 2019 levels; market expects continued structural growth<sup>8</sup>

1) Based on FY 2023, CAGR is organic mid-term ambition; 2) growth rates are organic CAGRs; 3) indicative only; 4) Source: Company estimate based on industry forecasts related to million square inches of silicon wafers; 5) Source: Omdia Display Market Outlook, Q1 2023; 6) Internal Business Intelligence; 7) Sources: LMC Automotive Light Vehicles Forecast, June 2023; 8) Sources: Euromonitor BPC (Beauty & Personal Care) May 2023

