

EUROPEAN ECS INDUSTRY

ADVANCING THE SECURE CONNECTED EDGE

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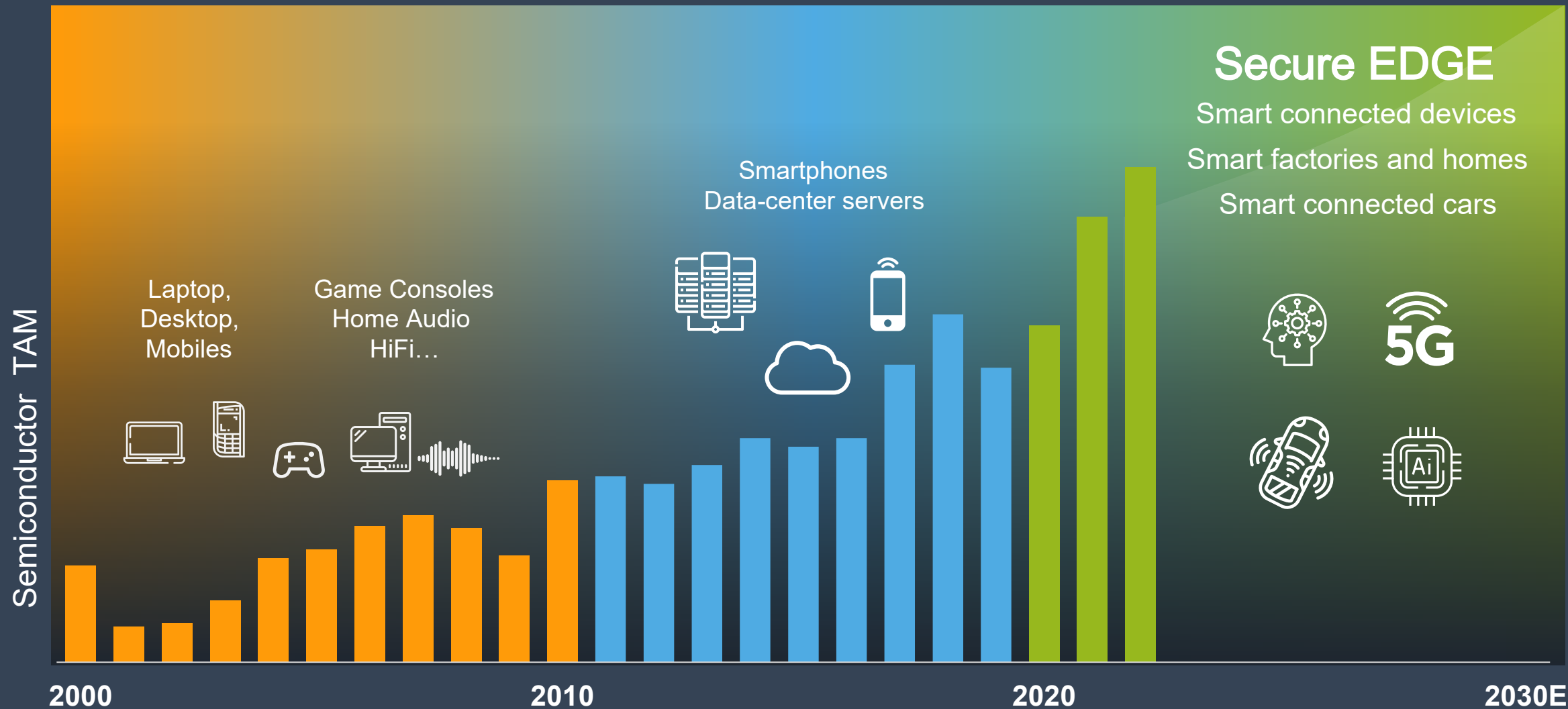


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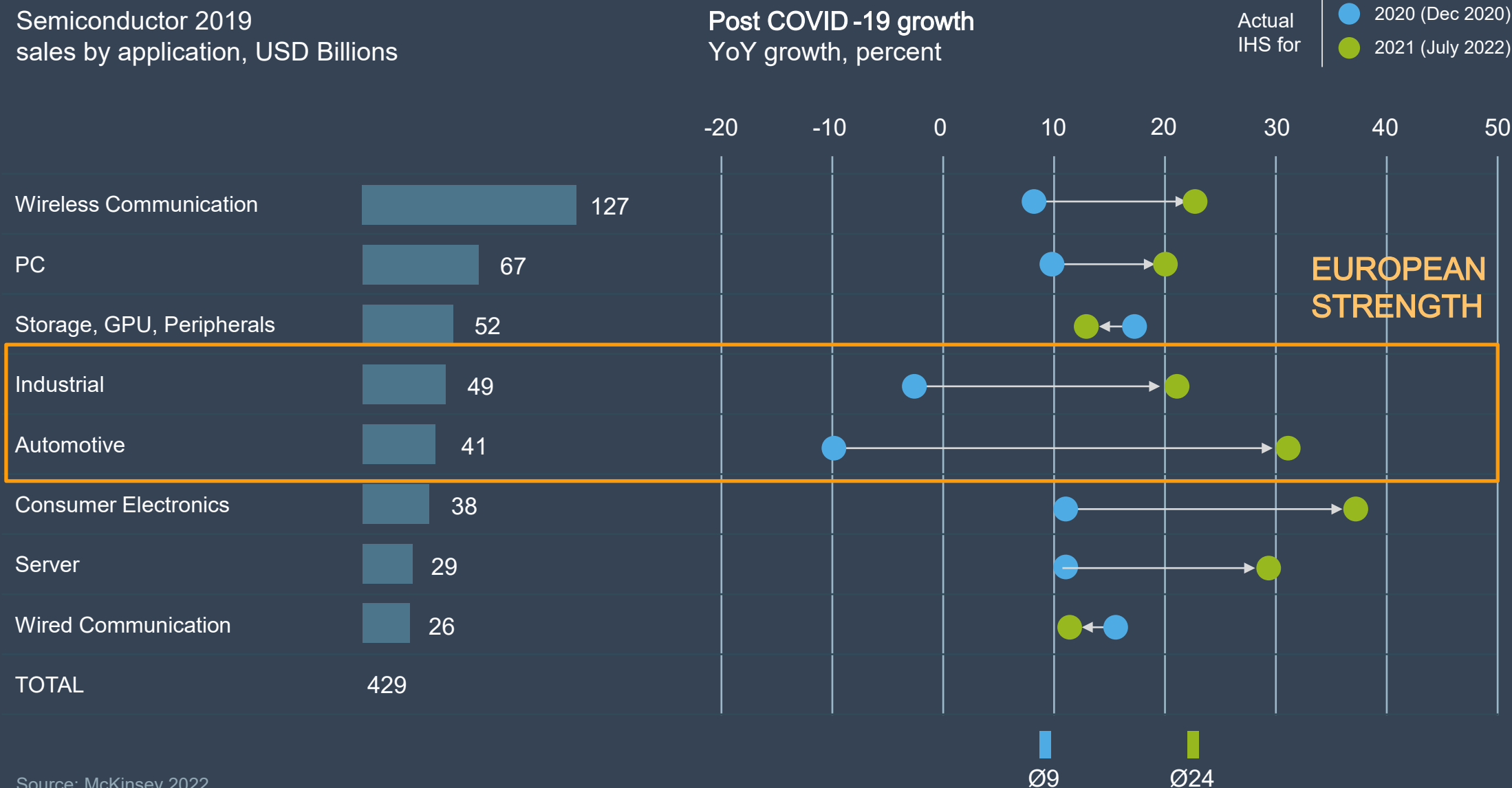
MACROTRENDS DRIVING WAVES OF SEMI GROWTH

2020+: RISE OF THE SECURE EDGE



Source: I.H.S.

STRONG ACCELERATION SINCE COVID ACROSS THE INDUSTRY



Source: McKinsey 2022

GLOBAL SHORTAGE UNLIKELY TO DISAPPEAR UNTIL 2026

MATURE NODES MOSTLY AFFECTED



● 2022
● 2026

Semiconductor 2022-26 supply vs. demand development by node size¹

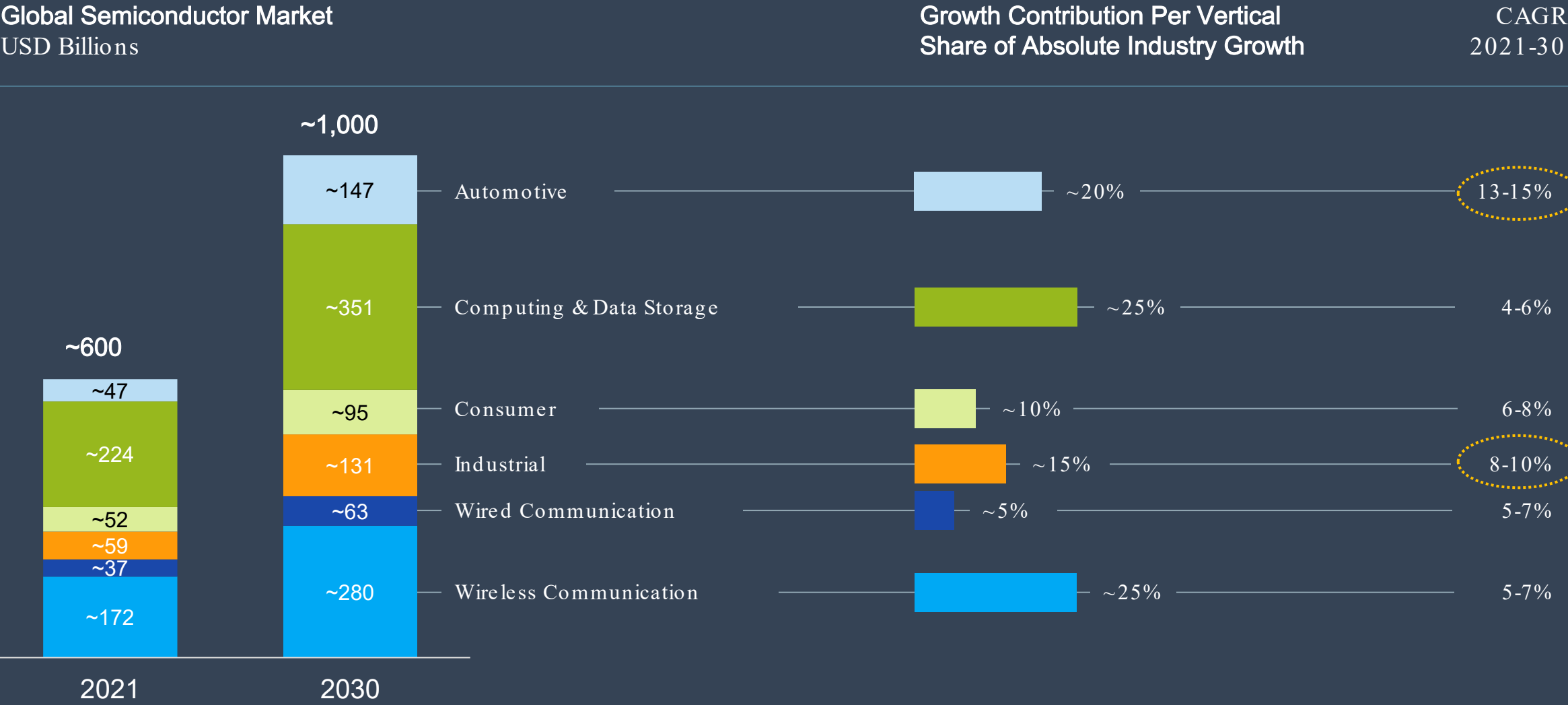
EUROPEAN STRENGTH

Device \ Node Size ²	≤ 7 nm	10/16 nm	22/28 nm	40/45 nm	55/65 nm	80/90 nm	≤ 100 nm
Discretes							MOSFETs Rectifier Power Diode
Analog				ASICs	Motor Driver IC	DC-DC Switching Converter LIN Transceiver Clock/Timing IC	DC-DC Switching Converter LIN Transceiver Clock/Timing IC
Logic and MCU / MPU	SoC FPGA	SoC FPGA	Microcontroller (32-bit) SoC	Display Driver	Ethernet Switch Ethernet Physical Layer Transceiver	Voltage Level Translator Microcontroller	Voltage Level Translator Microcontroller
Sensors						Magnetic, Temperature	Magnetic, Temperature

1. Demand, excl. over-ordering and stock build-up vs. installed capacity, excl. sensors and memory.
2. Node-size-specific assumptions: High fungibility at foundry with the 55/65 nm node sizes (foundry can switch quickly although it takes time to qualify for specific customers); ≤ 90 nm: incl. 8-inch fabs.
3. 18% based on announced capex investments between 2021-25.

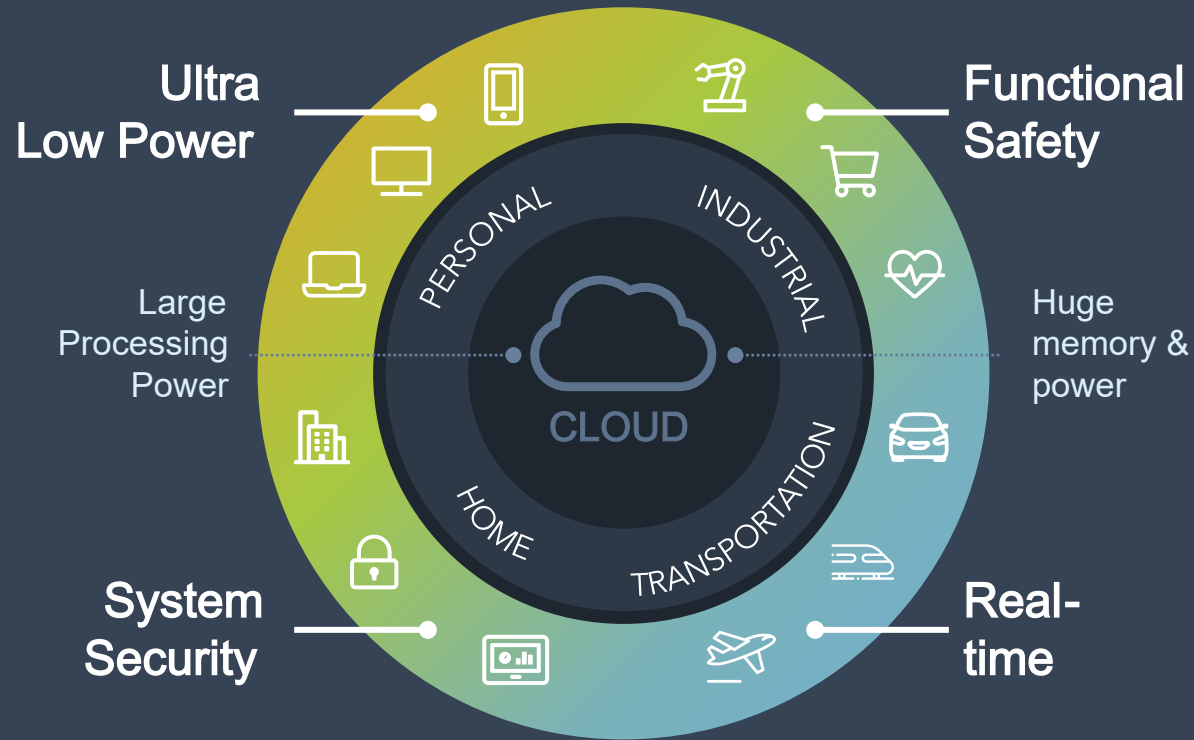
SEMI MARKET GROWING TO \$1 TRILLION BY 2030

AUTOMOTIVE & INDUSTRIAL LEADING THE WAY



Source: McKinsey 2022

KEY PERFORMANCE REQUIREMENTS FOR THE SECURE EDGE



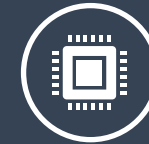
Data collection, processing and decisions taken at the Edge, securely connected to the cloud



>70% Electrified Vehicle
by 2030 (incl. mild hybrids)



>50% L2 Assisted Driving Cars
by 2030



2x Industrial Semi Market
by 2030 to \$130B



3x Smart Manufacturing Spending
by 2030 to ~\$1T\$



AI Semi revenue to \$86B
by 2026

TECHNOLOGY FOUNDATION FOR SECURE EDGE

SENSE



Everything
Aware

THINK



Everything
Smart & Learning

CONNECT



Everything
Connected

ACT



Everything
Efficient



Everything Safe AND Secure

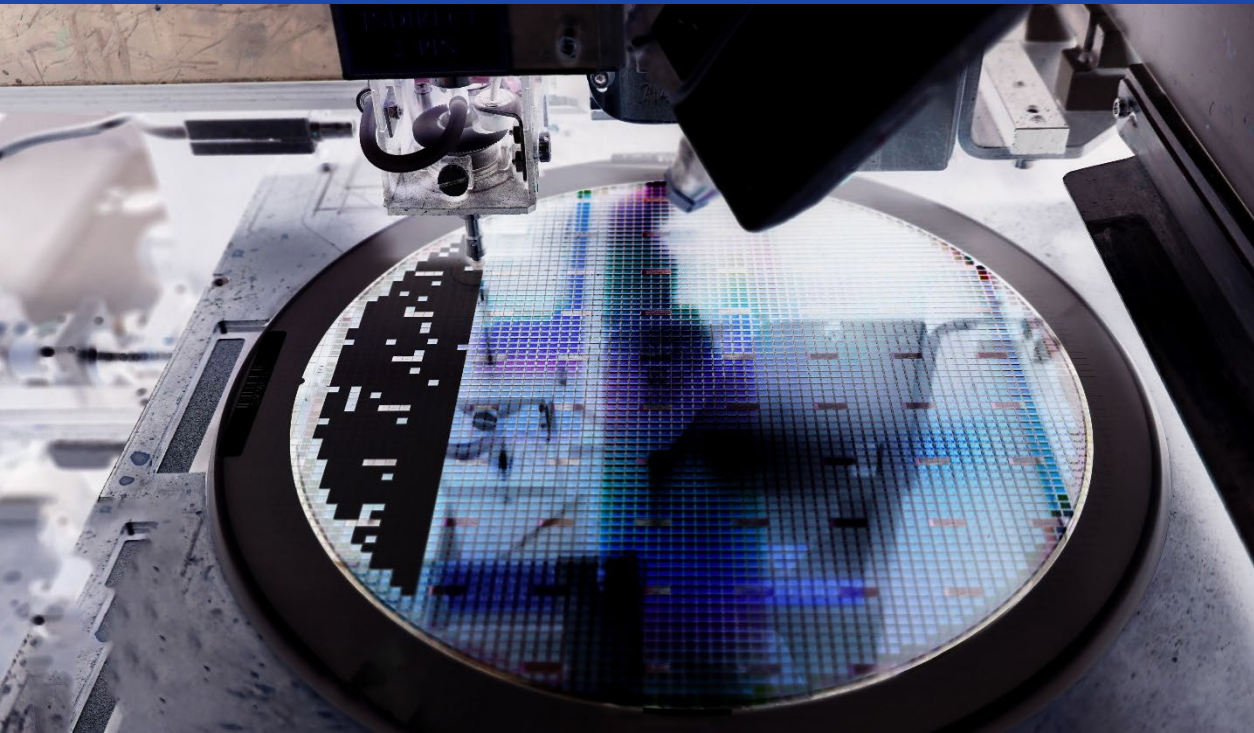


Scalable system solutions

ADVANCING THE SECURE CONNECTED EDGE REQUIRES TWO STRONG PUSHES

Manufacturing

Cross-European industry collaboration
supported by European Chips Act



Innovation

Building strong R&D and ecosystems



SMART MOBILITY

VISION ZERO



Low-Power Leadership

Functional Safety & Security

Automotive Quality

WHAT IT TAKES

Advanced sensing and processing for web of safety.

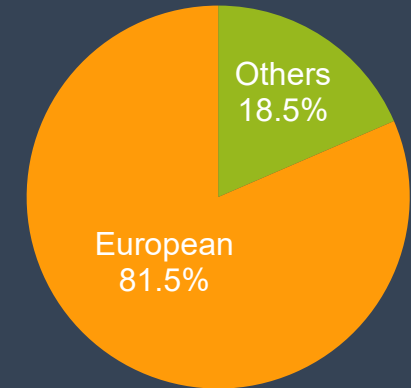
Radar	Sensor Fusion
Camera	Lidar
V2X	

Improved range, battery life, safety and extended charging infrastructure

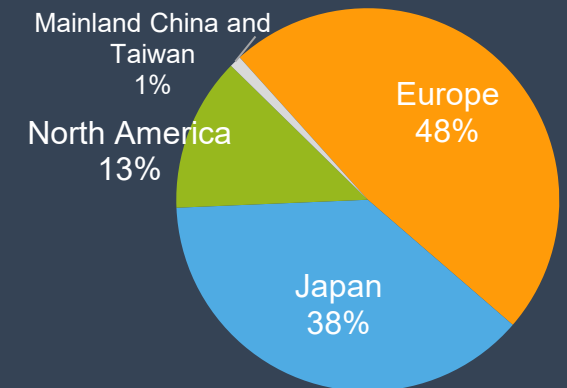
BMS	Power Discrete Power Module
Power MOSFETS	Inverters
Battery	Emotor Control

EUROPEAN STRENGTH

RADAR IC MARKET IN 2021 BY SUPPLIERS HEADQUARTERS

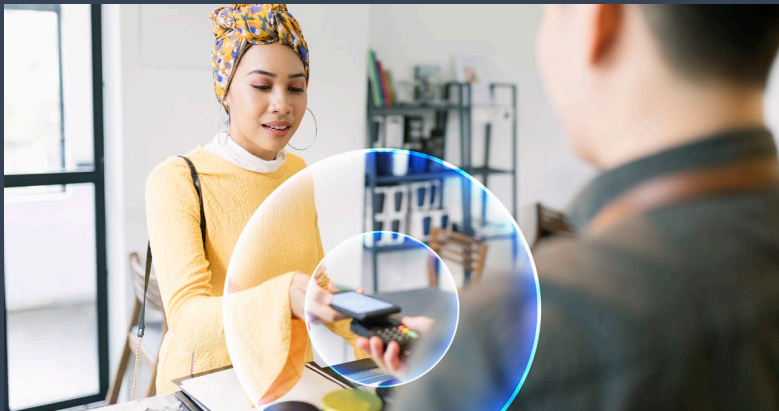


POWER DISCRETE AND POWER MODULE MARKET IN 2021 BY SUPPLIERS HEADQUARTERS



- More than 80% of the Radar IC market in 2021 was held by European suppliers' source – Yole
- S&P Global Mobility, Automotive Competitive Landscaping Tool, October 2022 - IHS

SECURE INFRASTRUCTURES



Leveraging European strength in security to build foundation of trust



Post-Quantum Crypto to Define Next Era of Public Key Crypto

WHAT IT TAKES

Secure connected edge requires leading security for consumer and societal foundation of trust.

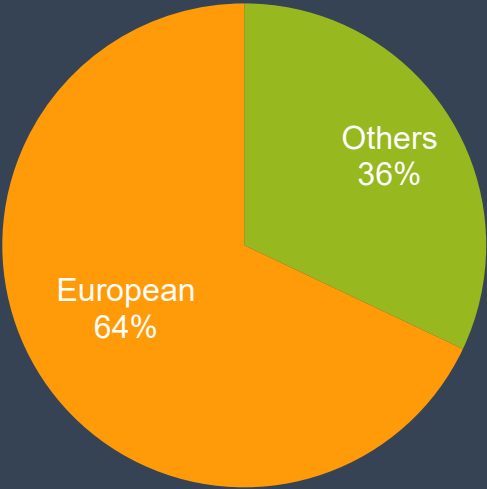
Secure Element	NFC
UWB	BLE
RFID	

Collaborate with standards groups and government agencies to create new cryptography solutions that will keep our data and devices safe and secure.

- US National Institute of Standards and Technology (NIST)
- German Federal Office for Information Security (BSI) continue to play a vital role

EUROPEAN STRENGTH

EUROPEAN COMPANY MARKET SHARES IN SECURE IC 2021*



* Source: ABI research, Secure Smart Card and Embedded Security IC Technologies - 4Q 2022

SMART **FACTORIES** INDUSTRIAL 5.0

WHAT IT TAKES

EU Industrial 5.0

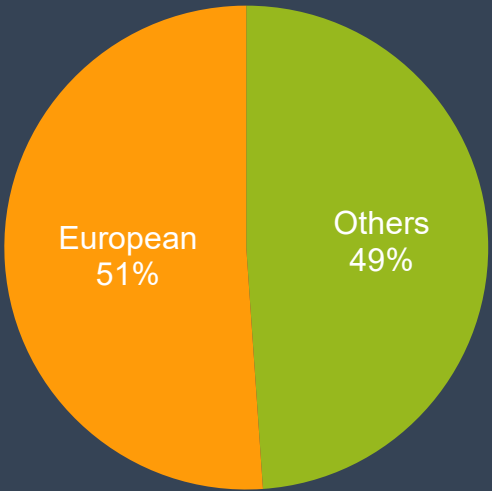
- Industry - single biggest contributor to the European economy
- Requires innovation from advanced sensor technologies, big data and artificial intelligence (AI)

Human Machine Interface	Low-power AI
Smart Metering	Efficient Microcontrollers
Converging Networks	Edge Connectivity

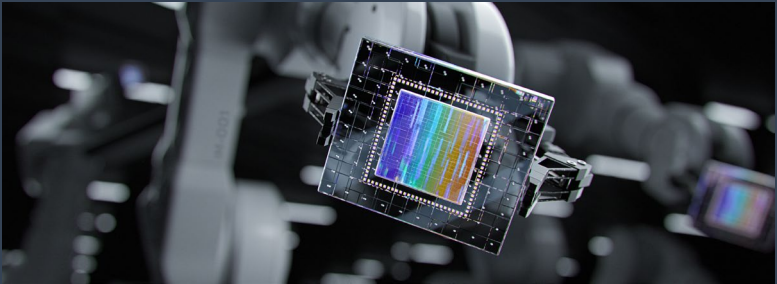
EUROPEAN STRENGTH

Top 3 industrial semiconductor spenders are European*

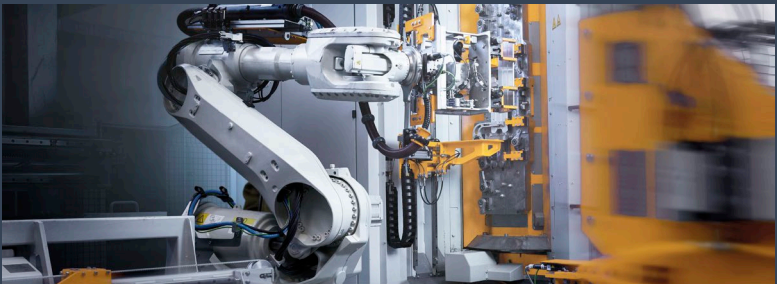
EUROPEAN COMPANY MARKET SHARES GENERAL PURPOSE MCU**



Human -centered



Resilient



Sustainable

*Source: OEM Semiconductor Spend tracker 1H22, Omdia, **Source: CLT Annual 2Q22, Omdia



Concluding

- The European ECS industry is an essential enabler for Europe's digital and green transitions and for global sustainable development goals
- Boosting European innovation will improve Europe's competitiveness
- In the geopolitical landscape, Europe must consciously address its technological sovereignty; independence of other continents is impossible, but a balanced interdependence is key
- The European chips act should focus on building on and expanding Europe's strengths, e.g., in automotive, industrial and security
- A close cooperation between the Commission, the Member States and the Industry is required with a governance in which all three are represented



Aeneas