

A decorative graphic on the left side of the slide, consisting of several concentric arcs in various shades of blue, arranged in a circular pattern.

2026

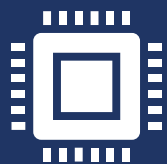
Same Chips, Different Machines: The Physical AI Synergies Europe Can't Afford to Miss

Dr Yu YANG

Principal Lead analyst – Automotives & Robotics
Yole group



Global automotive trends



Physical AI: The synergy between ADAS & Robotics



Position of the European industry

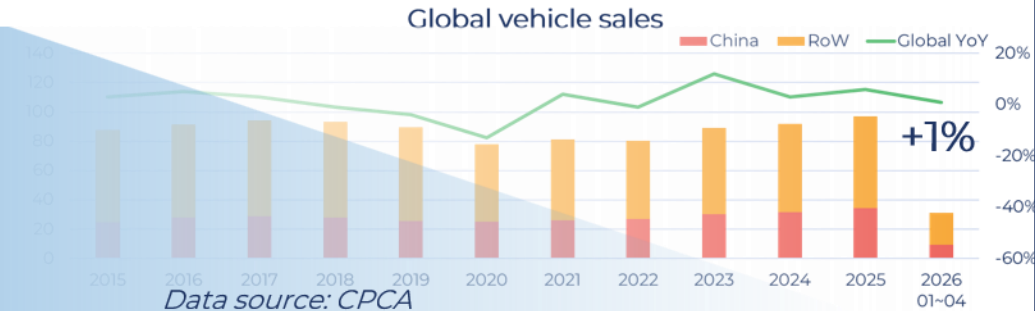


Summary

GLOBAL AUTOMOTIVE TRENDS – 2026/06 UPDATE

After a year of growth, constraints are on the way

- Low growth (+1%) so far, with contracting China (-5%) & growing India (+15%)
- We keep conservative view on global growth (+2%) for this year.
- China strongly pushes vehicle export while building overseas production



MW charging to boost BEV

- 800V + SiC are turning to be mainstream, greatly solving charge anxiety of BEV, which keeps upgrading to more than 1MW level
- GaN based OBC & DC/DC is getting production
- Embedded dies (module-less) are attracting cooperation through the supply chain

L2+/L4 convergence accelerating robotaxi

- Language element is introduced to E2E models to solve corner cases and improve explainability, although LLM can be implemented in various ways
- L2+ and L4 are merging in technical solutions, greatly speeding up robotaxi fleet and operation at a global scale
- LLM based AI agent is a developing trend in new infotainment systems



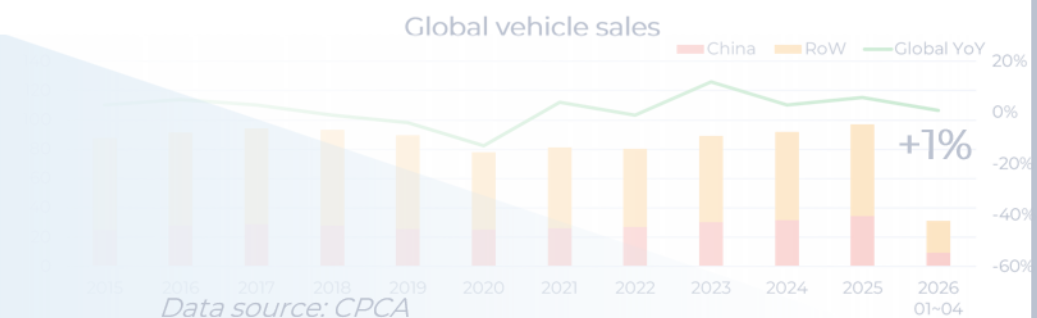
Semiconductor resilience is a new concern

- Supply shortage and price hike of memories (DRAM and NAND) continue, likely changing vehicle market in the coming months
- The disputation over the control of Nexperia created crisis management at OEMs, who paid less attention to commodity semiconductors
- 48V powernet is increasingly adopted by global OEMs, requiring new PMICs

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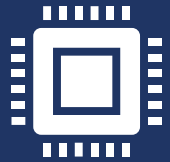


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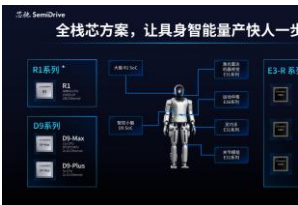
Position of the European industry



Summary

SYNERGYIES BETWEEN AUTOMOTIVES & ROBOTICS

A lot of automotive players throughout the supply chain: from OEMs to Tier-1s and Tier-2s, are already in the game.

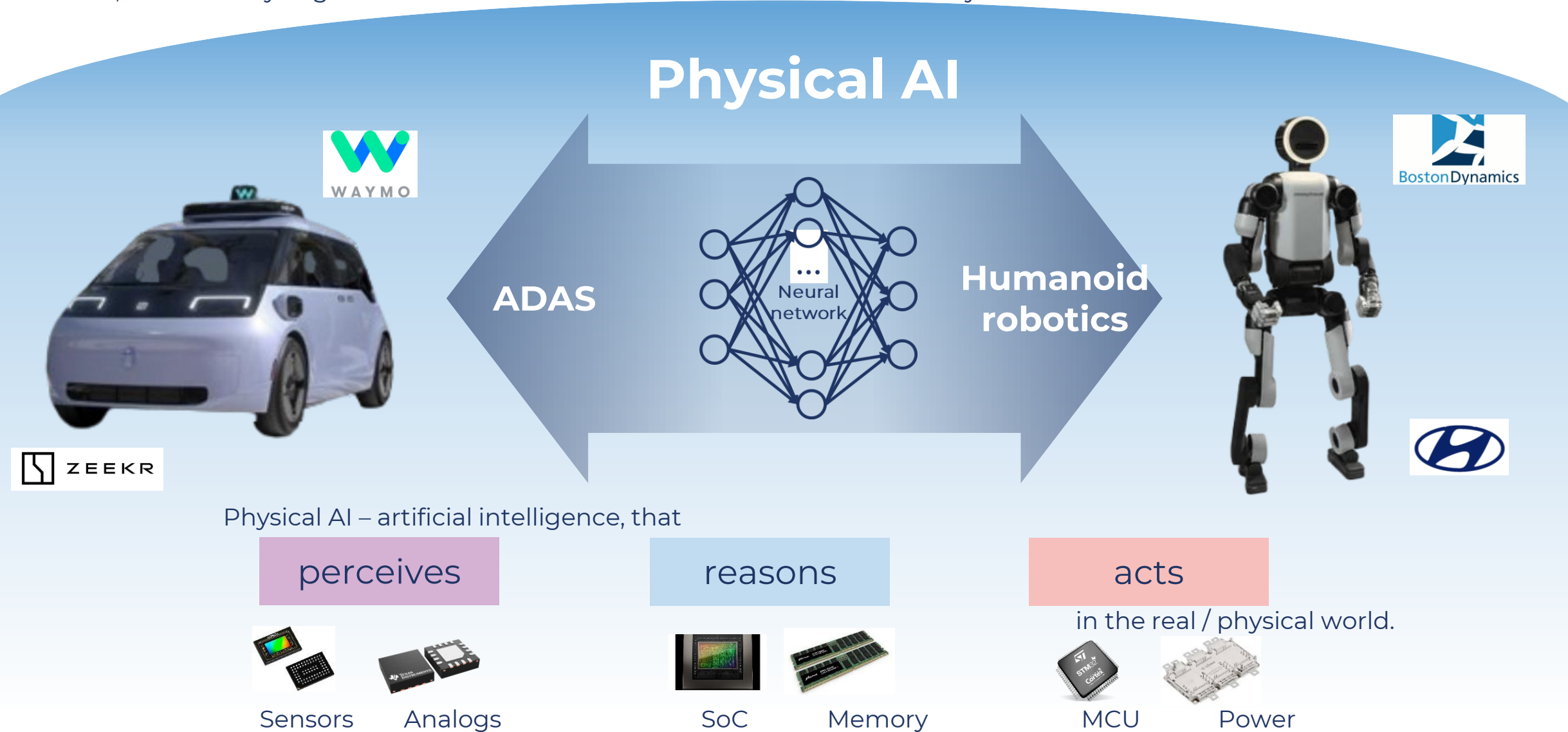
	OEM	Supplier	e-Part
At the scene	 	  	  
Out of the scene			



Humanoid robot at Valeo booth, serving popcorns, photo by Yole

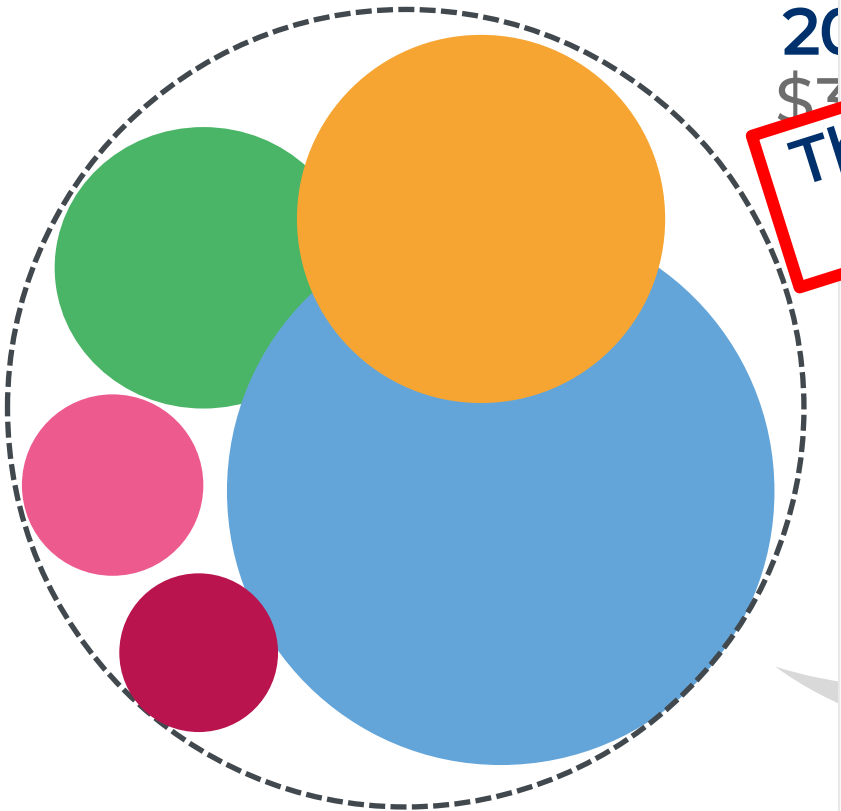
PHYSICAL AI

At Yole, we are analyzing both ADAS and Robotics under the framework of Physical AI.



ADAS MARKET: 2025 VS 2023

- Camera Module
- Radar
- LiDAR
- Ultrasonics
- ECU (HW & SW)



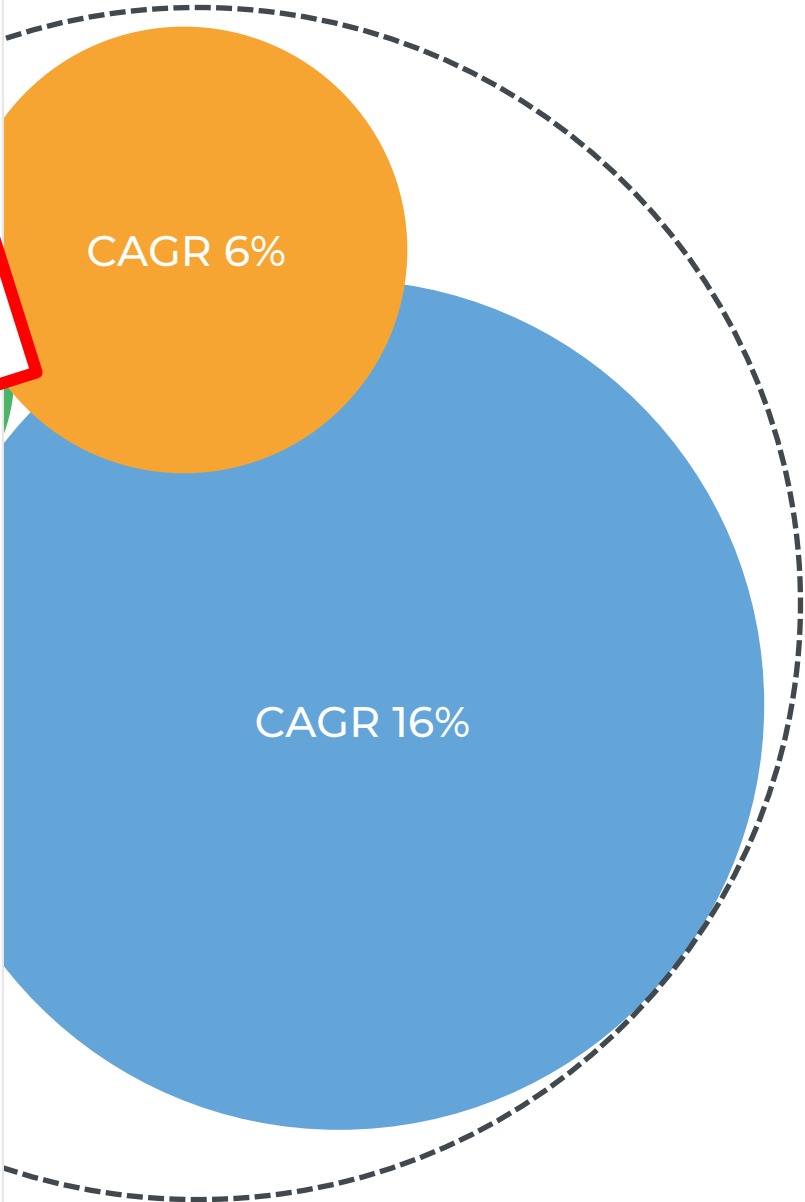
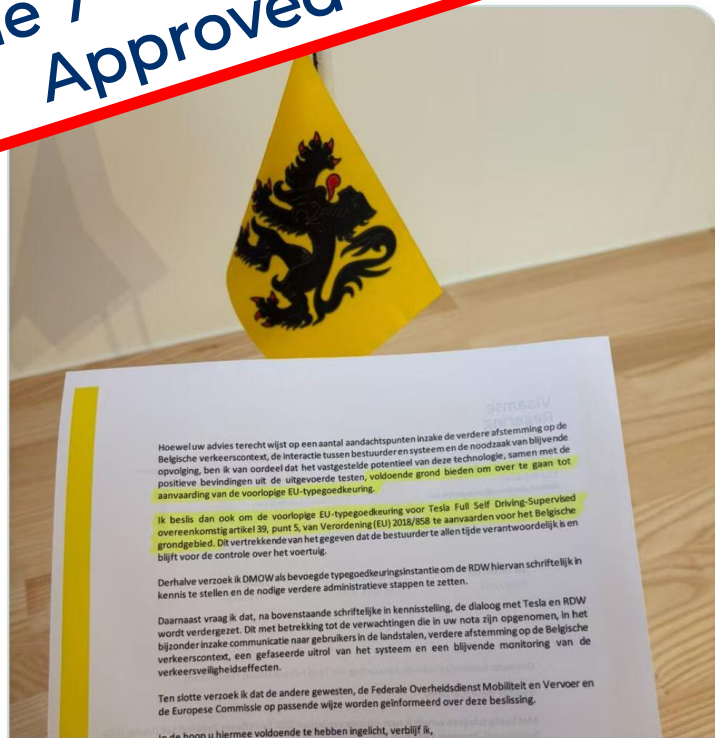
Annick De Ridder
@AnnickDeRidder

De @Tesla community houdt hier al geruime tijd de vinger aan de pols over de toelating voor de FSD-technologie op onze Vlaamse en Belgische wegen.

Uit waardering voor jullie niet-aflatende interesse (en aanmoediging 😊), krijgen jullie hierbij de primeur: ik heb net de...

gaat nu naar onze dienst...
@RDWnl op de...
goed...
...atie!

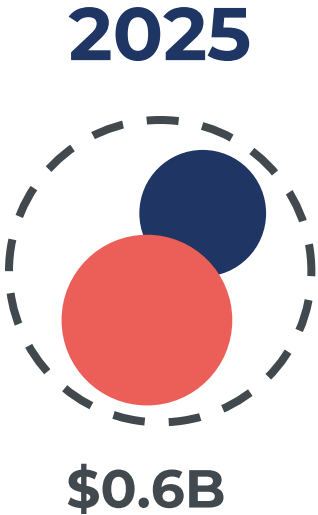
**The 7th 'country' in Europe
Approved Tesla FSD**



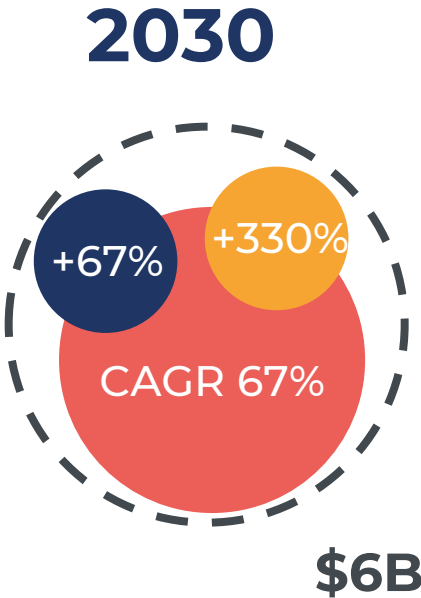
HUMANOID ROBOT MARKET: 2025 – 2030 – 2035



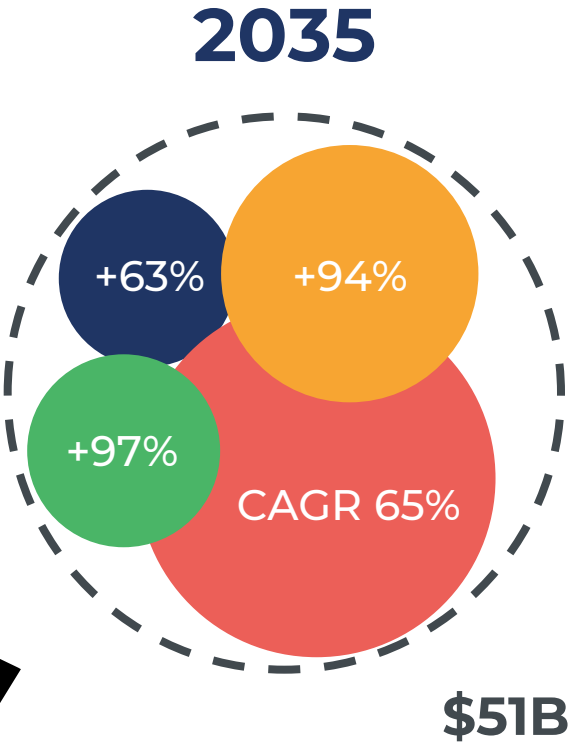
- Consumer
- Medical
- Industrial
- Others



CAGR₂₅₋₃₀: 56%



CAGR₃₀₋₃₅: 55%



HUMANOID ROBOTS CAN DO A LOT, BUT...



Quite a lot of exciting progresses in the last two years!



Image source: CCTV



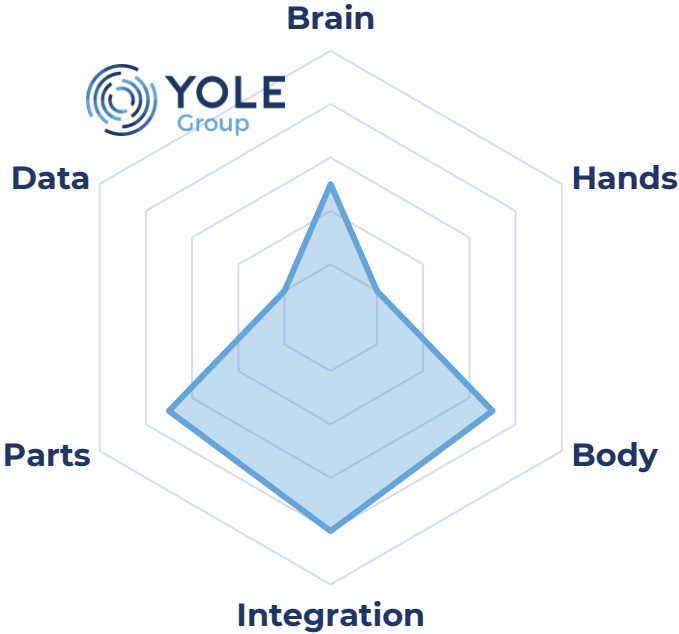
Image source: Figure

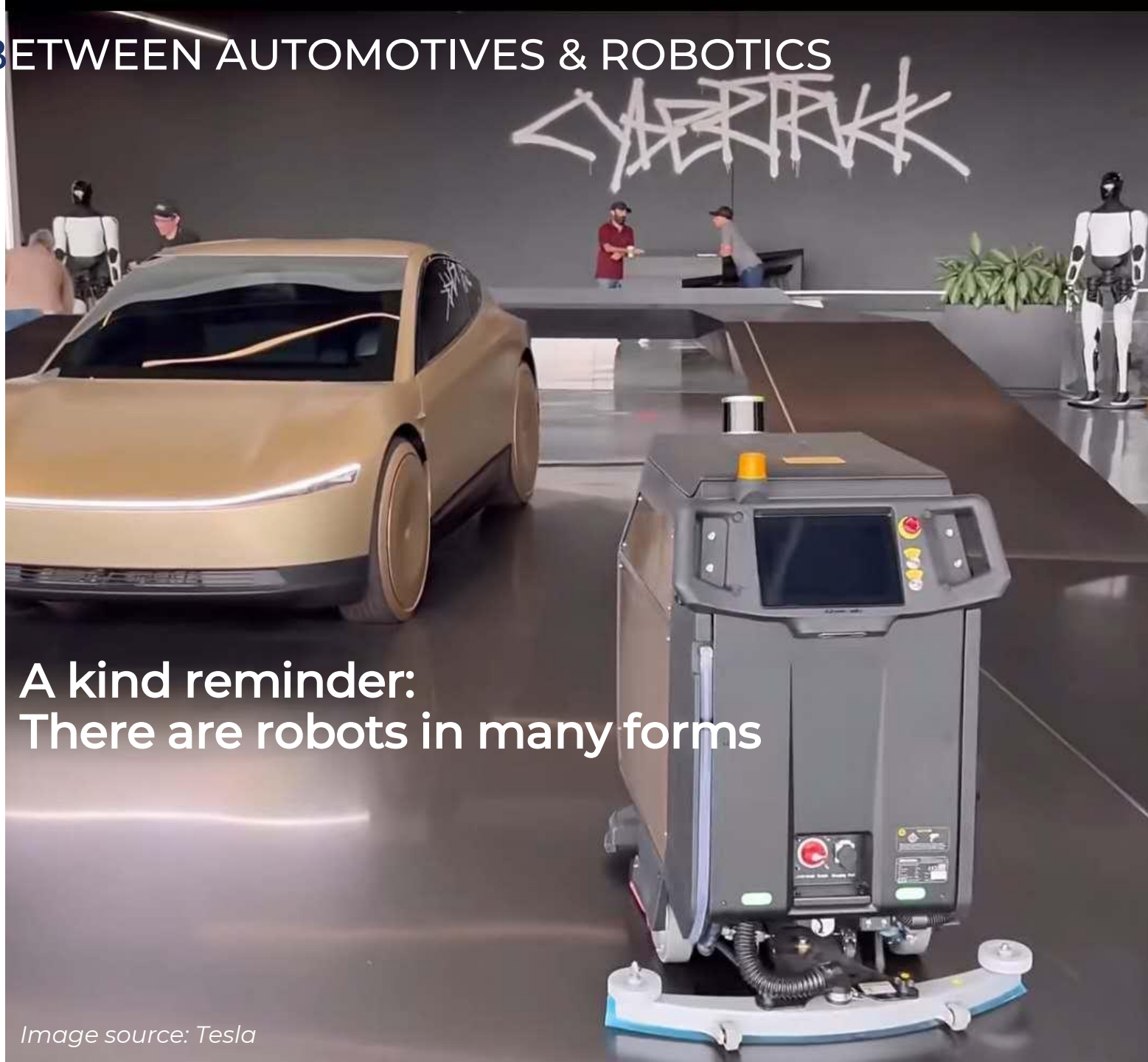


Image source: XPeng

General purpose robots are still a long way, but specific applications would take off

Maturity level of key technologies



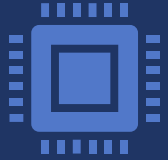


A kind reminder:
There are robots in many forms

Image source: Tesla



Global automotive trends



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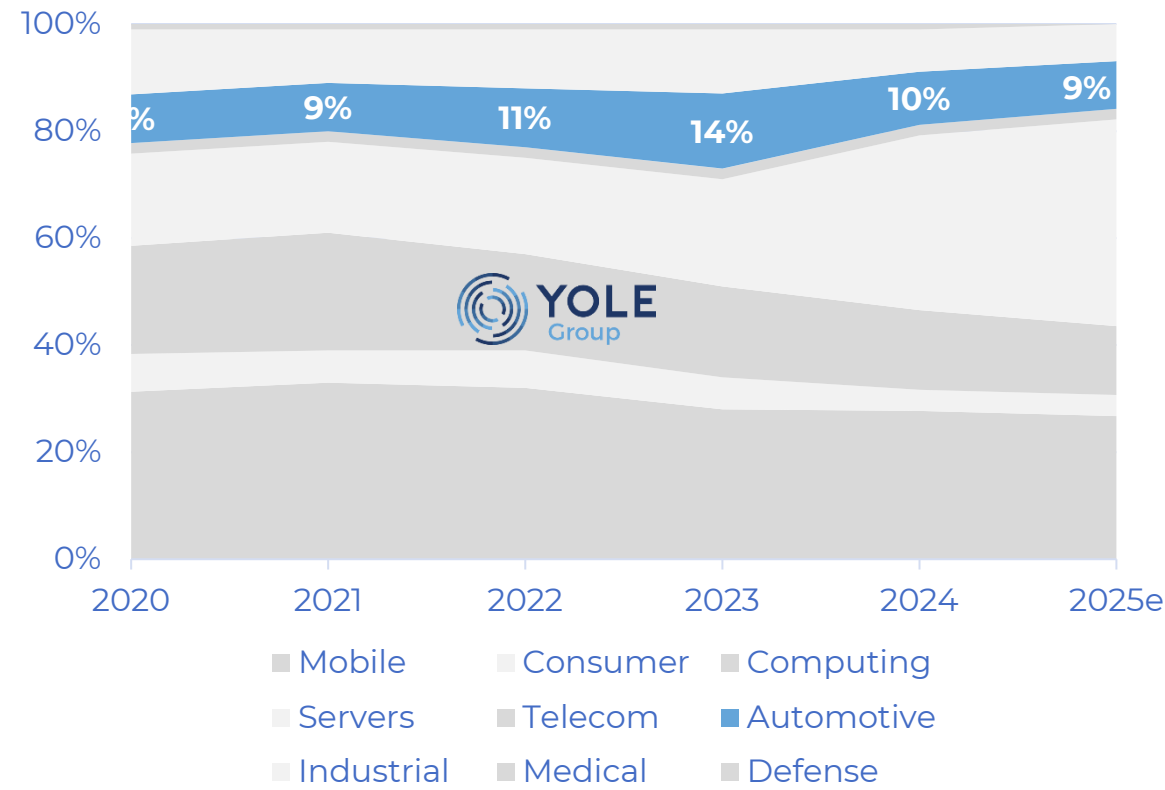
Position of the European industry



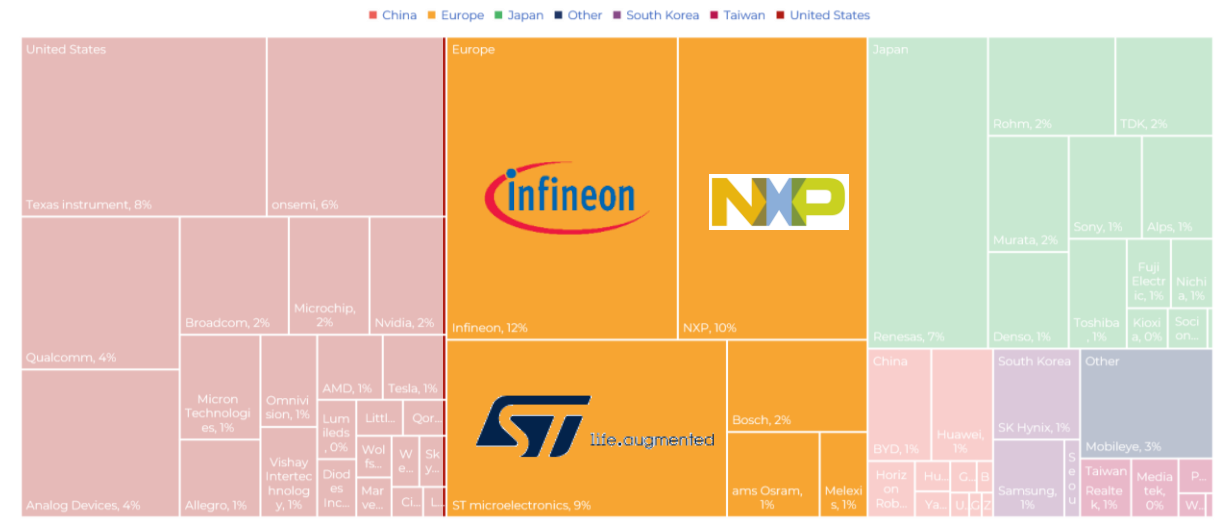
Summary

Automotive semiconductor is a cornerstone of the European semiconductor industry, as well as a key enabler of the modern automotive industry.

Share of Auto in total Semi



2024 market share of automotive semiconductor suppliers



Source: Yole 'Automotive semiconductor trends 2025' report

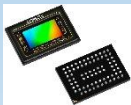


<https://www.yolegroup.com/product/report/humanoid-robots-2026>

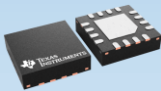
Physical AI

Physical AI – artificial intelligence, that

perceives



Sensors



Analogs

reasons



SoC



Memory

acts



MCU



Power

in the real / physical world.



Head / Vision

Sensor	Possible suppliers
CMOS Image sensor	Sony, Omnivision, onsemi
Depth / ToF	Intel RealSense, Keyence
LiDAR	Livox, RoboSense, Hesai

Body / Perception

Sensor	Possible suppliers
Thermal camera	Teledyne FLIR

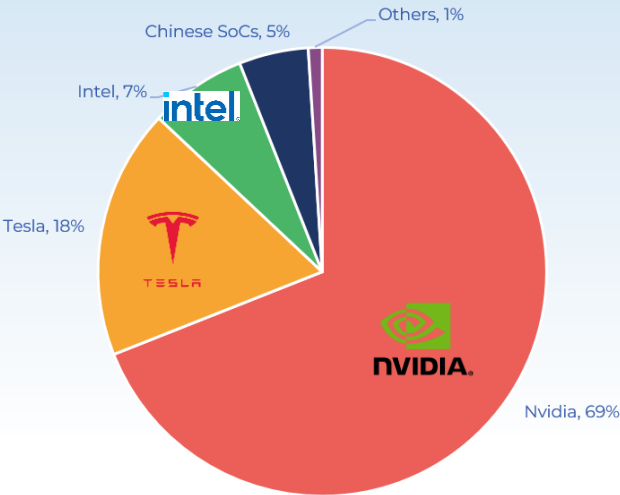
No evidence that thermal cameras will be used due to a very high cost but could be possible for specific use cases such as inspection.

Joints / Contact

Sensor	Possible suppliers
Magnetic sensors	Melexis, Allegro, Sensata, Keli
IMU	Bosch, ST, Analog Devices, TDK, Melexis



2025 on-robot SoC market share



life.augmented

48V Main bus switches


Key players

OMNIVISION

Role

Protect and isolate the robot's main power bus.

Highlights

- Fast disconnect (<1ms) for emergency stop or short-circuit.
- Used in battery-to-system safety relays and e-stop loops.

48V to 24V converter


Key players

Role

Generate regulated low-voltage rails for neck, wrist, and sensor electronics.

Highlights

- Isolate digital electronics from noisy servo buses.
- Multi-output DC/DC stages feed Jetson boards and vision stacks.

GaN FET Joint inverter


Key players

Role

Drive small, high-rpm motors in wrists, hands, and necks.

Highlights

- GaN's fast switching and low Rds(on) boost torque density.
- Compact inverter boards reduce joint mass and heat.

Gate driver and current sensor IC


Key players

Role

Translate MCU commands into precise gate pulses; sense phase currents for field-oriented control.

Highlights

- Core of every servo inverter.
- Provide galvanic isolation and over-current protection.

Battery management IC


Key players

Role

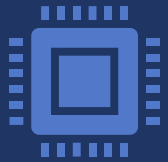
Monitor, balance, and protect Li-ion battery packs.

Highlights

- Multi-cell monitoring (10-20 cells typical).
- Pack state-of-health, thermal control, and safety cut-off.



Global automotive trends



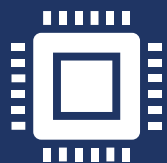
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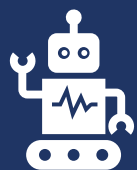
Summary



Physical AI has two major applications: ADAS & robotics, sharing huge synergies especially for semiconductors



ADAS has a highly accountable growth between 2025 & 2031, +12% annually, while humanoids are projected for more than 50% for a decade



6 key factors should be mature sufficiently for large scale implementation, before which specific applications can still take off



Europe has a strong position in automotives, which can be largely converted to robotics. However, the central ICs for intelligence is missing

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