

# Automotive semiconductor strategies are differentiating Chinese OEMs from their global peers

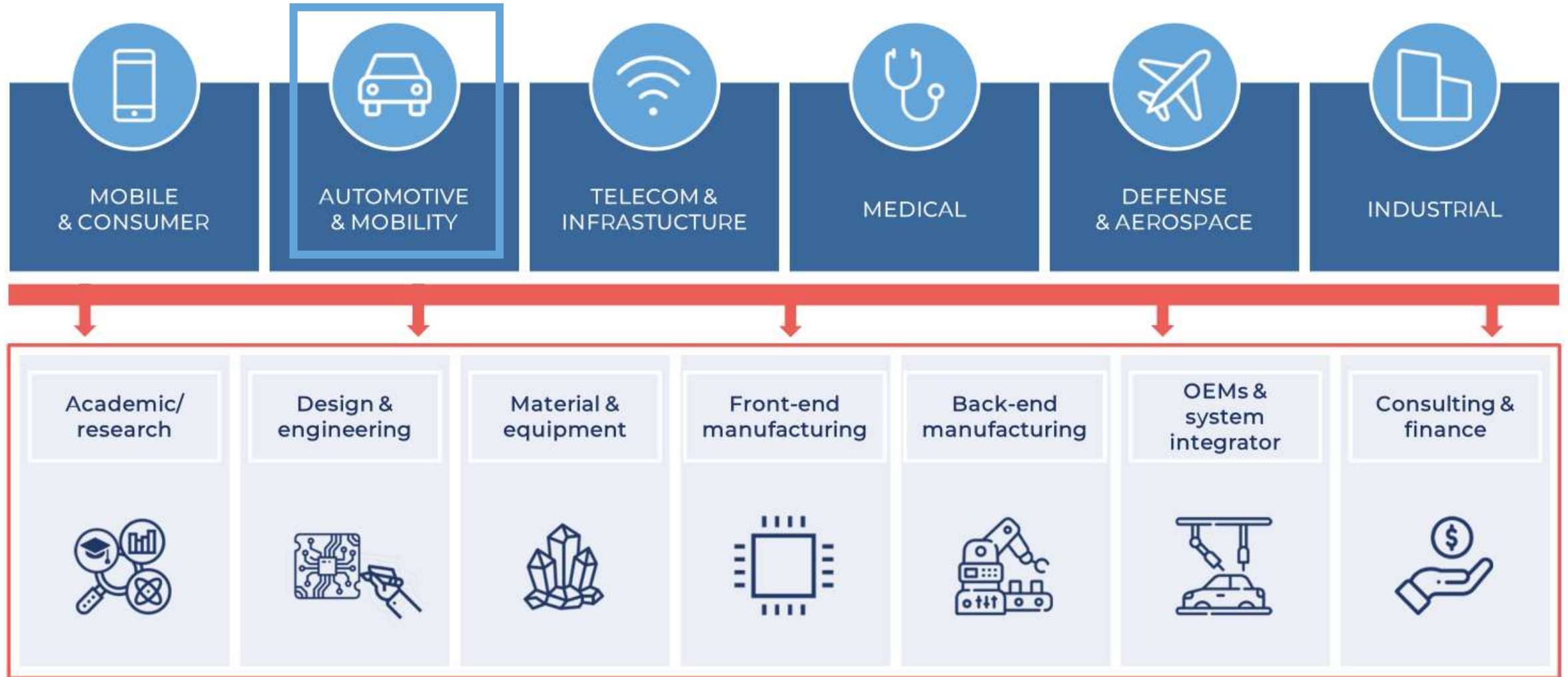
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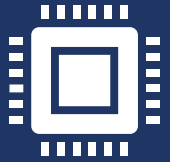


# — ACROSS THE SEMICONDUCTOR SUPPLY CHAIN & MARKETS —





**G**lobal automotive trends



**O**verview of automotive semiconductors



**T**riple-C model: OEMs' semi strategies



**S**ummary





## Rising global market & increasing semi content

- 2025 (01~09) has an increase (+6%), with main contribution of China (+13%)
- Although China is leading in both total vehicle, EV and export markets, the price war is rather intensive, stripping off profits through the supply chain
- Strong focus on semiconductor localization in China with rapid progress

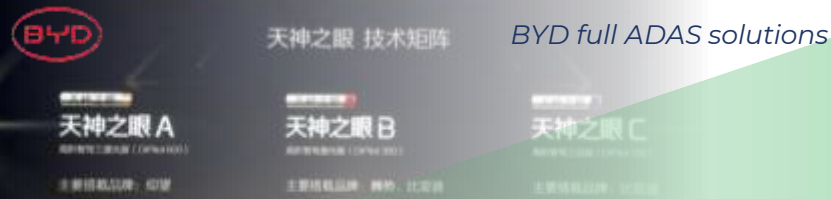
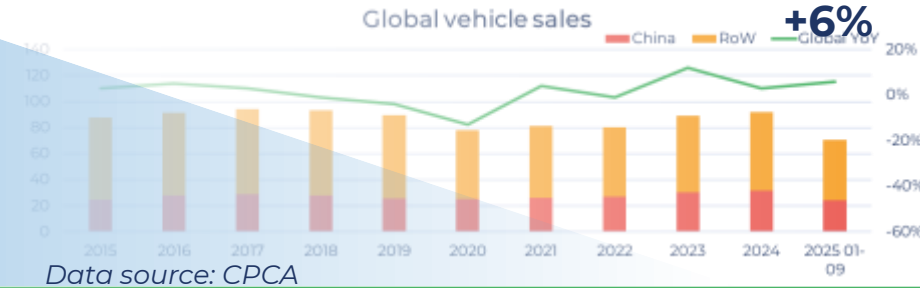


Image source: BYD

## ADAS, from 'nice to have' to a must

- BYD sets ADAS (L2+) as a standard for budget cars, not a premium for luxuries; other markets are mainly pushed by regulation updates
- E2E is being increasingly implemented, in either 1 stage or 2-stage manners; VLA / VLM and world model are in consideration for better safety
- L4 robotaxi gets new attention with business expansion with potential positive returns

## BEV growth resumes, while PHEV growth slowing down

- Bouncing of BEV in Europe, with potential regulation relaxation; PHEV is flat in growth, however REEV is projected to increase at a global scale
- The adoption of SiC is accelerating as substrate prices are rapidly decreasing, with no sign of stopping yet
- First GaN based OBC is expected to be on market in 2025
- Embedded dies (module-less) solutions evolve fast, with potentials of revolutionize the industry

## 全球首发 | GaN 高效电源 Changan GaN based OBC

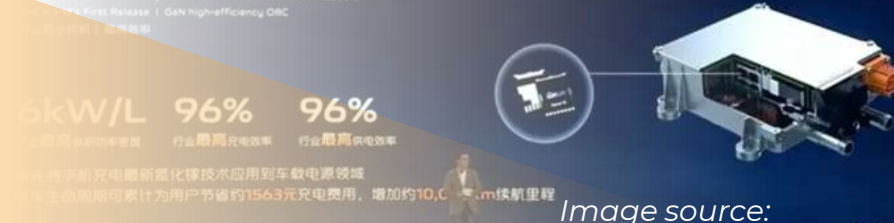


Image source: Changan



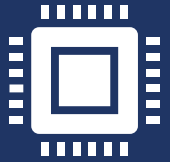
Image source: Tesla

## 48V powernet in the revolution of next gen. E/E architecture

- Tesla cybertruck is the first production vehicle with 48V powernet, in combination with a full vehicle ethernet. Upgrading to 48V (from 12V) requires new families of automotive analog devices
- Central computers (cockpit + ADAS) can bring cost competitive solutions for mainstream cars; safety critical domains, such as new chassis controls can be integrated cross domains



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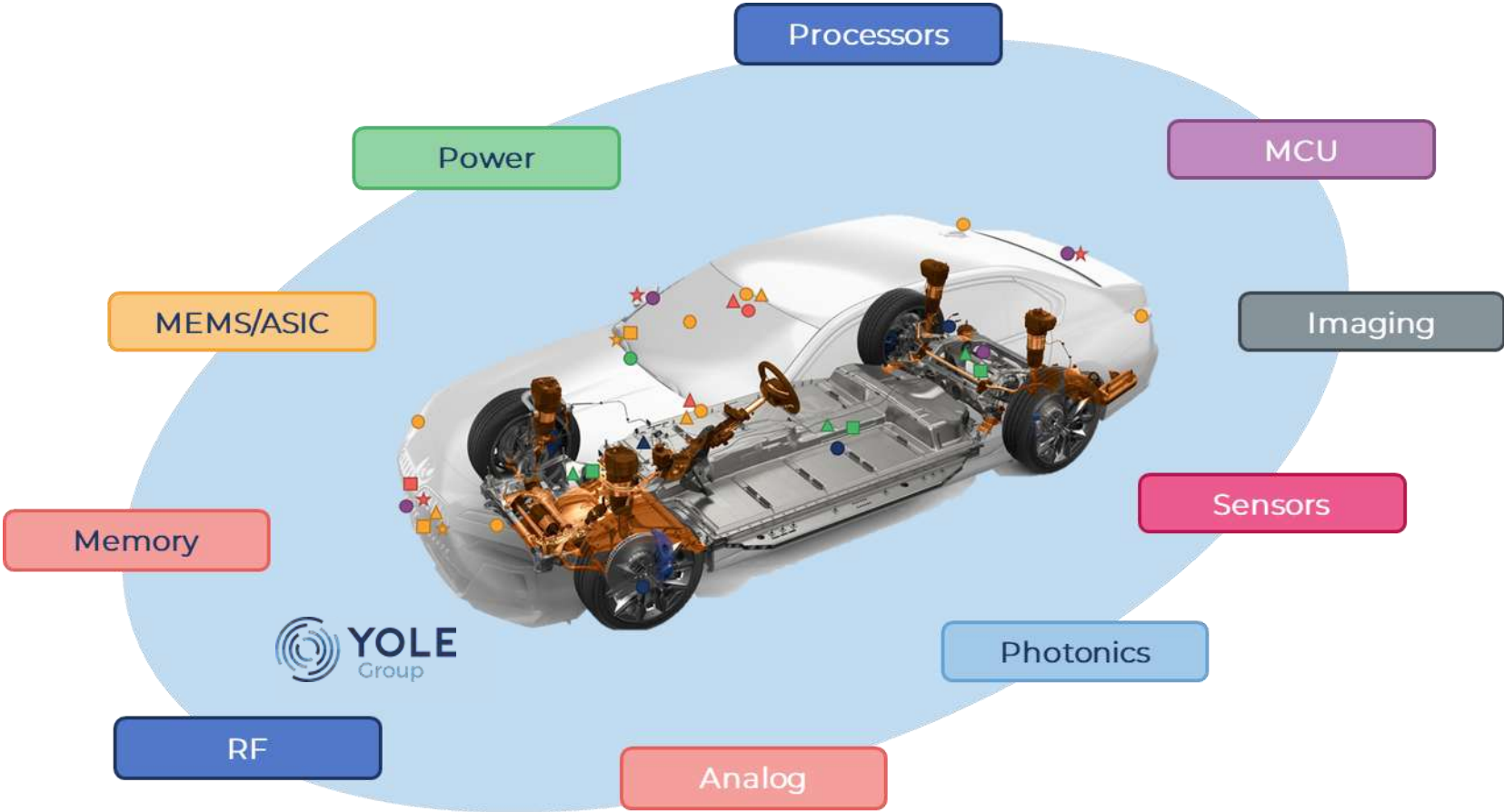
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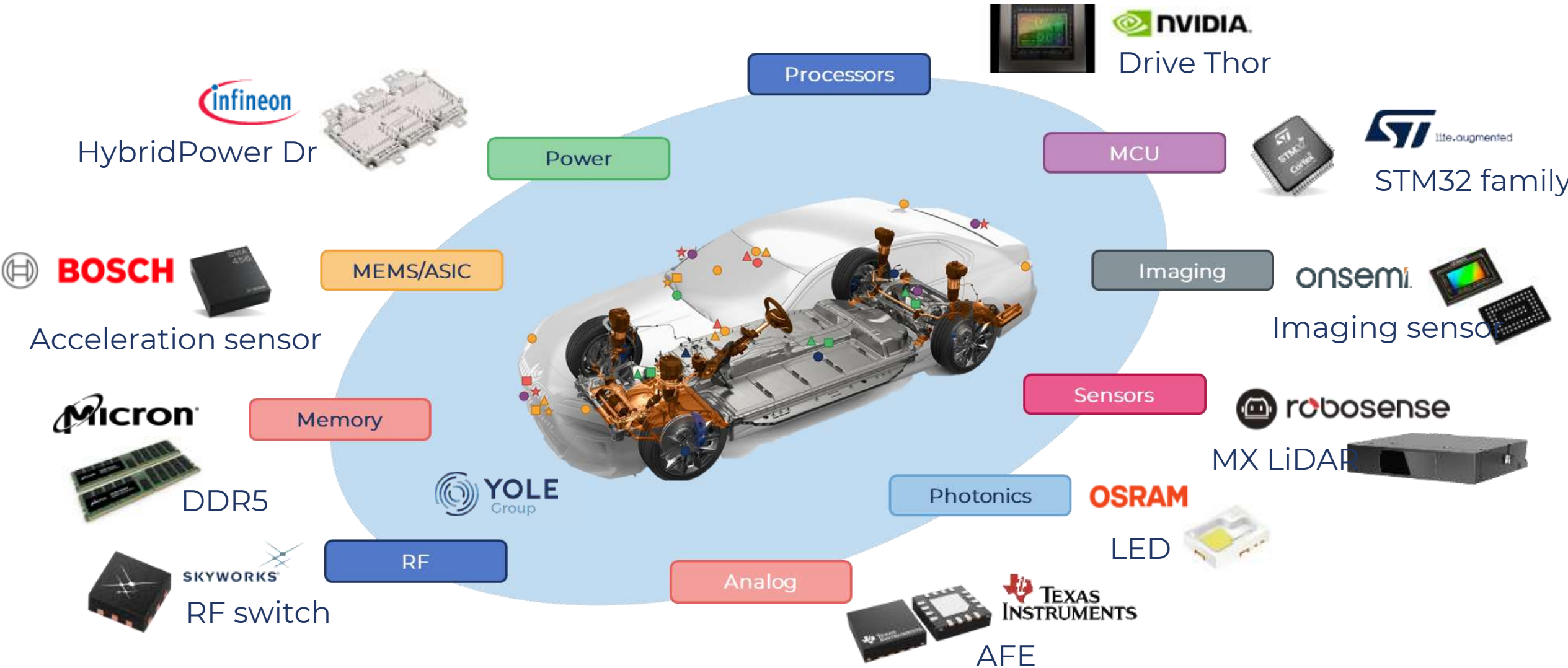
**S**ummary



# SCOPE OF AUTO SEMI STUDY AT YOLE



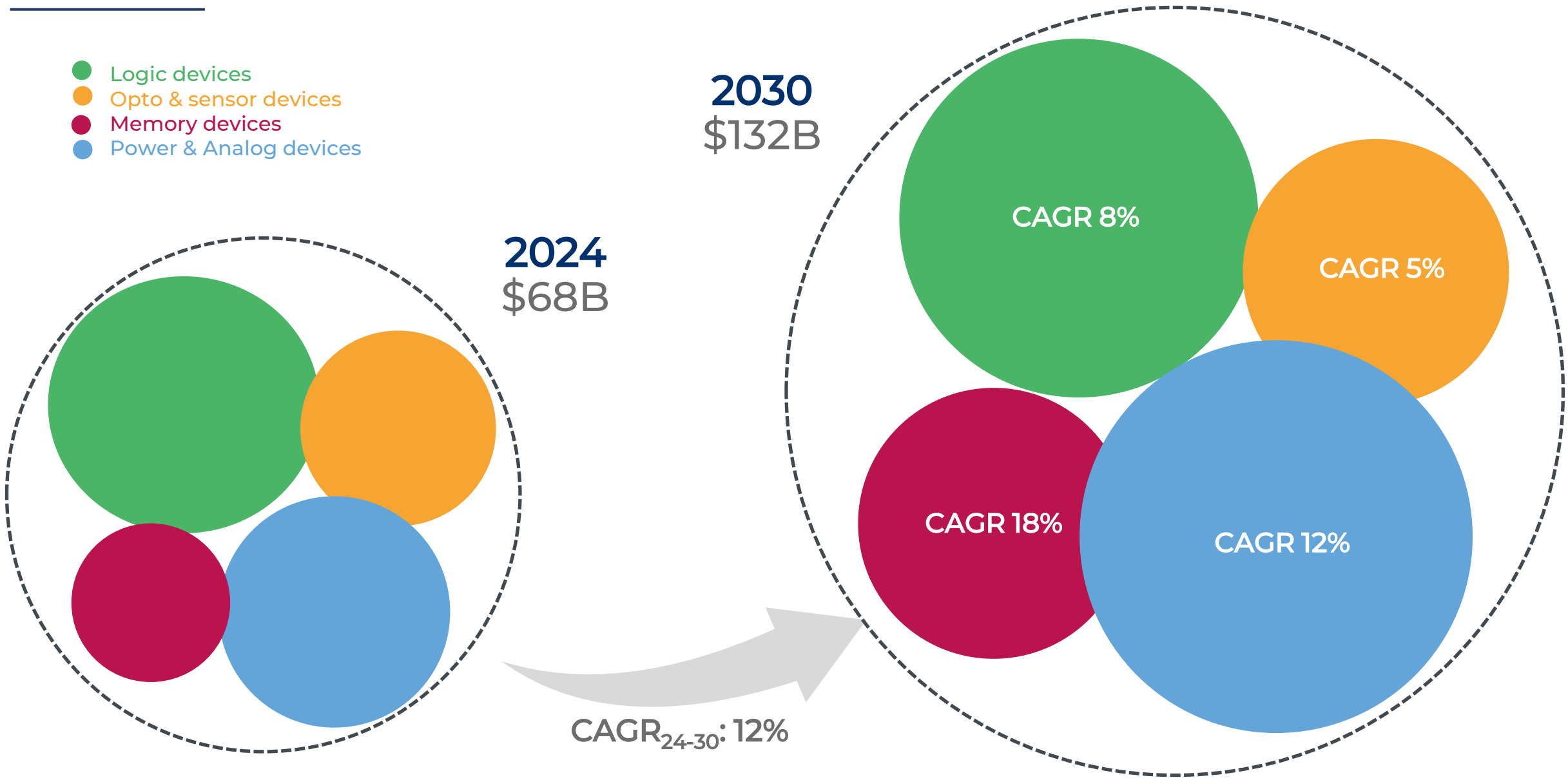
# SCOPE OF AUTO SEMI STUDY AT YOLE



# 2024-2030 SEMICONDUCTOR MARKET FOR AUTOMOTIVE BY DEVICE TYPE



- Logic devices
- Opto & sensor devices
- Memory devices
- Power & Analog devices



# SEMICONDUCTORS ARE THE ENABLER OF NEW TECH: 48V POWERNET



PMIC & others | Gate driver | Motor drive | Converter IC | Power switch | MOSFET/transistor | eFuse | LED driver

FROM TECHNOLOGIES TO MARKET

48V

Automotive 48V powernet 2026  
Market and technology report

YOLE Group

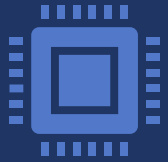
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# CHIP CAR ON FINE

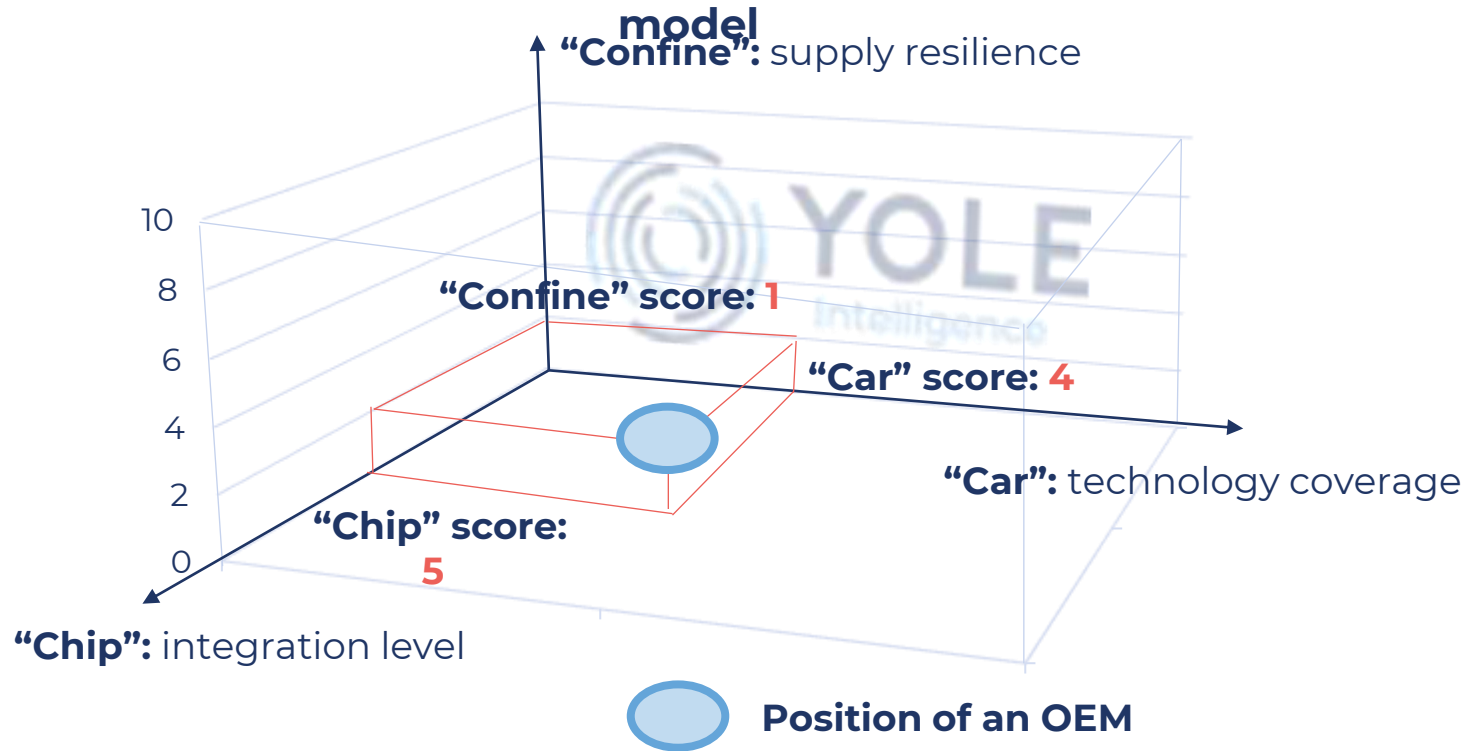
Semiconductor is getting critical but with big variety, more players joining auto semi

Localization and independency of supply chain to gain resilience

More vertical integration from OEMs. Holistic strategies is urgently needed



## OEM semiconductor strategy – ‘Triple C’ model



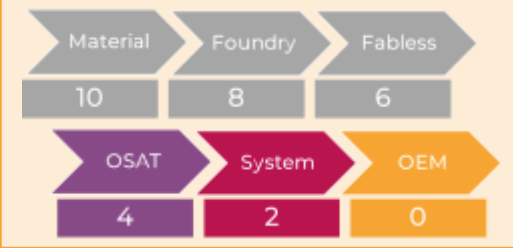
### Car: 4

4 out of 10 technologies covered



### Chip: 5

Working as a fabless in key chips



### Confine: 1

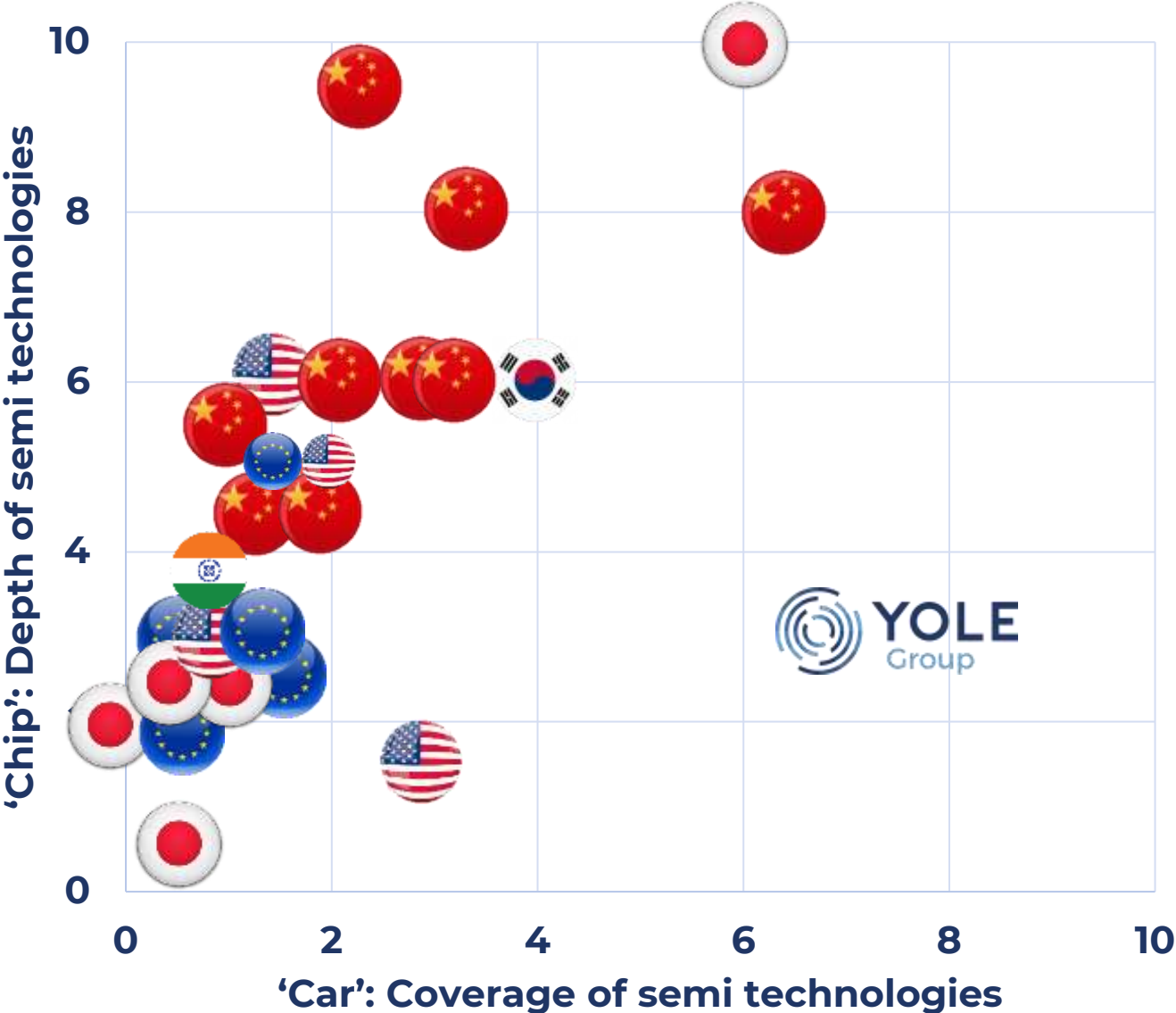
Fragile supply chain, risk in foundry



# OVERVIEW OF THE TRIPLE-C MODEL



A focus on the 'Car' and 'Chip' metrics is provided as the 'Confine' metric is more on the supply chain strategies and location of an OEM.



# OVERVIEW OF THE TRIPLE-C MODEL



A focus  
of an



Products

Strategies and location

Our expertise

What we do

Who we are

Industry Insights

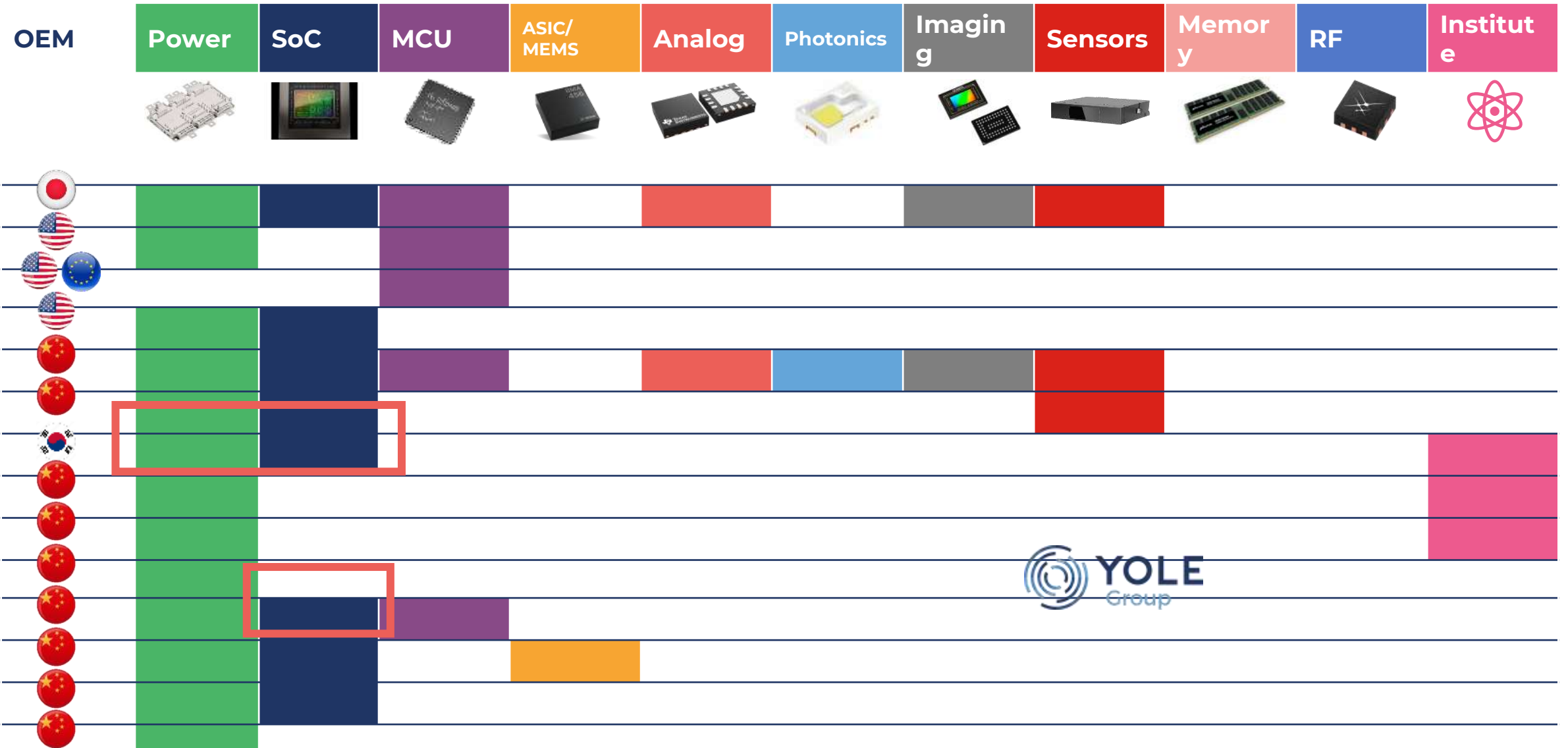


**Yu Yang**  
PhD, is Principal Analyst, Automotive Semiconductors at Yole Group

*Nexperia is embedded in virtually every modern vehicle architecture. Its low-voltage MOSFETs, diodes, discretes, and standard logic ICs may be small, but they are essential to making cars move, steer, and communicate.*

'Car': Coverage of semi technologies

# TECHNOLOGY COVERAGE – ‘CAR’ METRIC



Only OEMs with more than 1.0 are listed, which normally have actual investments in certain technologies

# GLOBAL OEM IN SiC MODULE



Non-exhaustive list



**Vehicle manufacturing**



**System manufacturing**



**Module manufacturing**



**Device manufacturing**

**Typical**

	Vehicle manufacturing	System manufacturing	Module manufacturing	Device manufacturing
	OEM	System supplier (T1)	Module supplier (T2)	Device/fab supplier
			IDM (T2)	
	OEM	Inverter (T1)	Module (T2)	Device/fab supplier
	OEM	OEM Under development	Module (T2)	Device/fab supplier
	OEM		Module (T2)	Device/fab supplier
	OEM		Module (T2)	Device/fab supplier
	OEM		Module (T2)	Device/fab supplier
		HYUNDAI MOBIS	Module (T2)	Device/fab supplier
	OEM			onsemi
		BLU NEXUS		DENSO

# GLOBAL OEM IN SiC MODULE



**Vehicle manufacturing**



**System manufacturing**



**Module manufacturing**



**Device manufacturing**

Non-exhaustive list

Typical

OEM

System supplier (T1)

Module supplier (T2)

Device/fab supplier



OEM



STELLANTIS



xEV

VW in-house inverter & power module designs

A very first in-house inverter and power module design for Electric Urban Car Family, covering Volkswagen, Skoda, and Cupra brands (budget cars).

The inverter shares housing with e-axis in a 3-in-1 integration, although we believe X-in-1 would be a good choice for this vehicle class. The submodules are highly optimized for inverter with an easy assembly process. Side mounting to e-axis leads to an inverter with different priority in area and height, compared to top mounting.

Power modules are a proprietary design, with multiple state-of-the-art elements (molded half bridge, stacked DC terminals, laser welding connection, etc.), which would be used in other inverters as a compact and competitive design.



OEM

IAA Mobility 2025 detraif | www.yolegroup.com | 13

**BLU NEXUS**

**DENSO**

# THE OBSESSION OF SiC MODULE



**Vehicle manufacturing**



**System manufacturing**



**Module manufacturing**



**Device manufacturing**

*Non-exhaustive list*



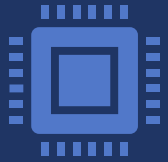
Vehicle manufacturing	System manufacturing	Module manufacturing	Device manufacturing
	XPT	YOLE Group	UNT
	OEM		UNT
	OEM	JV with  Under development	
	OEM	JV with	
	OEM	JV with  中国中车	
	智新科技	JV with  中国中车	
	HYCET	晶动科技	
	OEM		RedPower
	VREMT INNOVATION		GEENER JV with  RED POWER Under development
	弗迪动力		BYD Semiconductor Under development
		OEM	Under development

Contract manufacturing
JV in manufacturing
Subsidiary
Fully vertical





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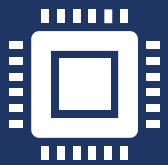


**S**ummary

# SUMMARY



**E**lectrification and ADAS are the most prominent trends in automotive



**A**utomotive semiconductors grow annually at 12% till 2030, with more involvements of OEMs



**T**riple-C model to help OEMs building semi strategies. Chinese players lead worldwide





Thank you for your attention.  
Questions?

You can also reach me later with [yu.yang@yolegroup.com](mailto:yu.yang@yolegroup.com)



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Automotive powertrain & electrification 2025 – Vol 1



Power SiC 2025 – Markets & applications



Automotive powertrain & electrification 2025 – Vol 2



Power SiC 2025 – Fron-end manufacturing & equipment



Automotive 48V powernet 2026



Power GaN 2025



Semiconductor Trends in Automotive 2025



Status of power module packaging industry 2025

Contact our Sales Team for more information



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