Valeo

UBS

BRAIN DIVISION

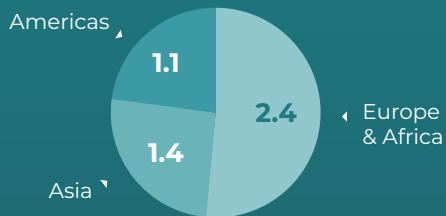## STRICTLY PRIVATE & CONFIDENTIAL

SMART TECHNOLOGY FOR SMARTER MOBILITY

A HIGH TECH PROFITABLE GLOBAL LEADER

€4.9Bn
Revenue in 2023

- Americas: 1.1
- Asia: 1.4
- Europe & Africa: 2.4

> €30Bn
Order Intake 2022+2023

> 4x
OEM Book-to-Bill Ratio 2023

24,000+
Total FTEs

of which **10,000+ R&D**
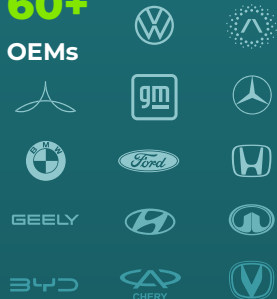
2/3 of **BRAIN Indirect Employees**

1 out of 3
New Vehicles Has BRAIN Content[1]

60+
OEMs

- **23** Manufacturing Sites
- **14** R&D Centers
- **8** Customer Offices
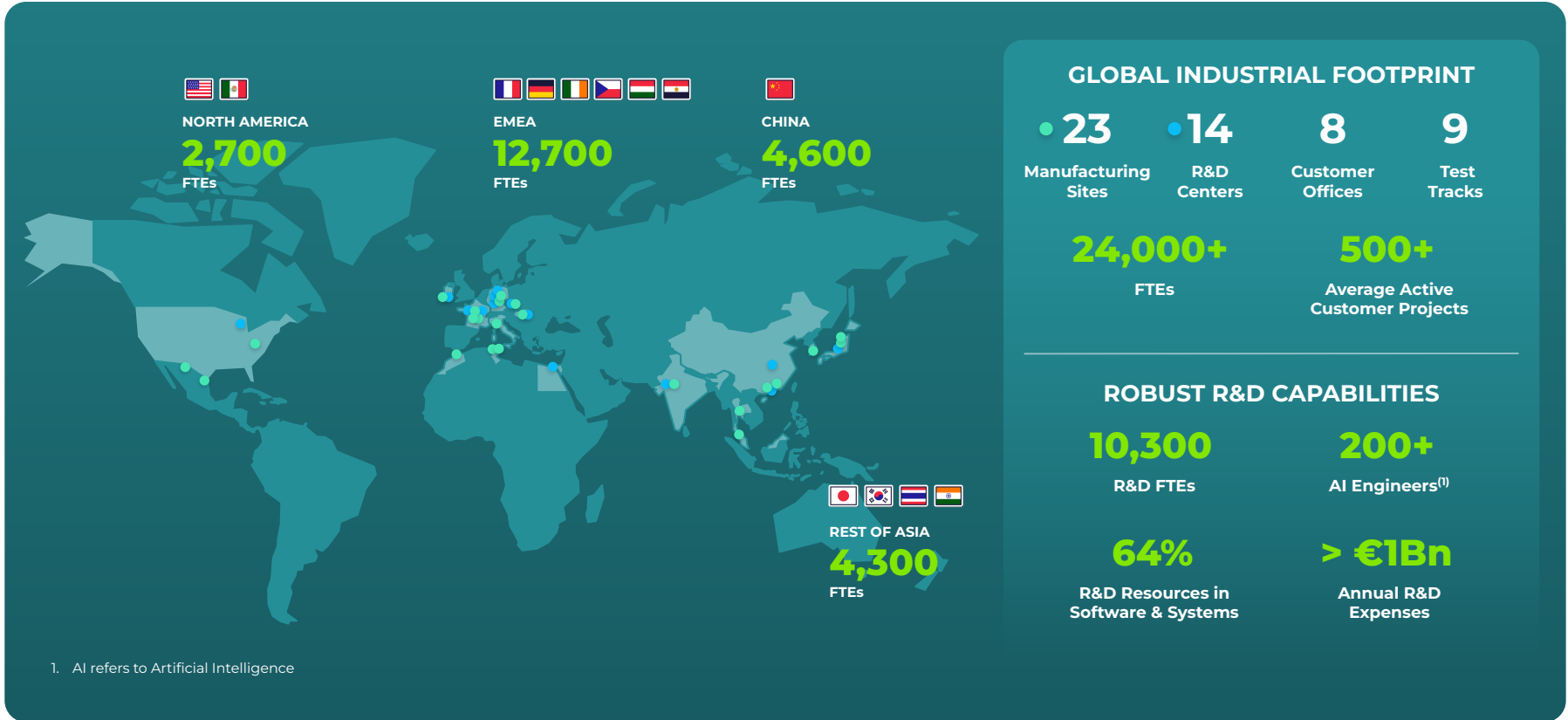- **9** Test Tracks

8,700
Active Patents Portfolio

1. Based on Valeo estimates

UNMATCHED TECHNOLOGICAL AND INDUSTRIAL CAPABILITIES AND SCALE

Global Footprint with Robust R&D Capabilities – Managing Complexity is Part of Brain's DNA

NORTH AMERICA
2,700
FTEs

EMEA
12,700
FTEs

CHINA
4,600
FTEs

REST OF ASIA
4,300
FTEs

GLOBAL INDUSTRIAL FOOTPRINT

23	**14**	**8**	**9**
Manufacturing Sites	R&D Centers	Customer Offices	Test Tracks

24,000+
FTEs

500+
Average Active Customer Projects

ROBUST R&D CAPABILITIES

10,300
R&D FTEs

200+
AI Engineers[1]

64%
R&D Resources in Software & Systems

> €1Bn
Annual R&D Expenses

1. AI refers to Artificial Intelligence

MAIN RESEARCH & DEVELOPMENT CENTERS

Global R&D Footprint Harnesses Top Technical Talent from Around the World

Créteil, VMTC
France
👥 **700**

Bietigheim
Germany
👥 **1,200**

Prague
Czech Republic
👥 **710**

Tuam
Ireland
👥 **500**

Troy
USA
👥 **430**

Cairo
Egypt
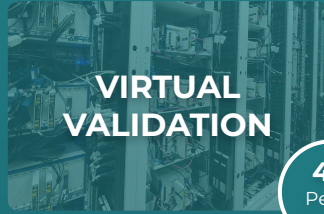👥 **2,100**

Chennai
India
👥 **1,400**

Shenzhen & Wuhan
China
👥 **1,800**

👥 Headcounts

WORLD-CLASS VALIDATION CAPABILITIES ENABLE SYSTEM ROBUSTNESS AND PERFORMANCE

Significant Infrastructure in Place to Harness Data and Use it to Create Value
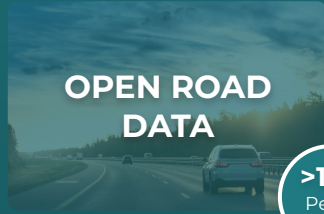
VIRTUAL VALIDATION

40 Peta-bytes

Large scale simulation capability with
8 HIL & SIL FARMS
on sites and in the cloud running
250+ test benches[1][2]

PHYSICAL VALIDATION

2.5 million KM

Worldwide network of
9 TEST TRACKS
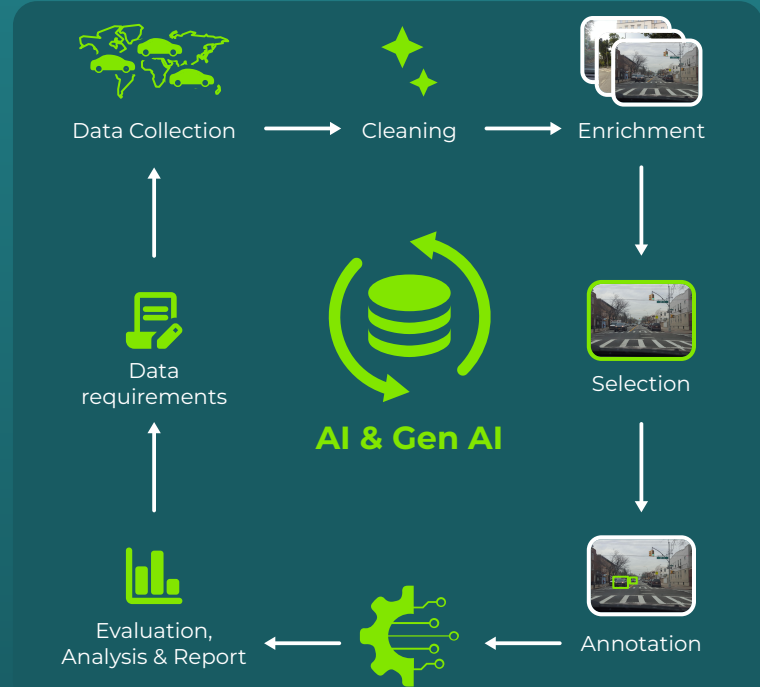with on-site facilities running
250+ vehicles

OPEN ROAD DATA

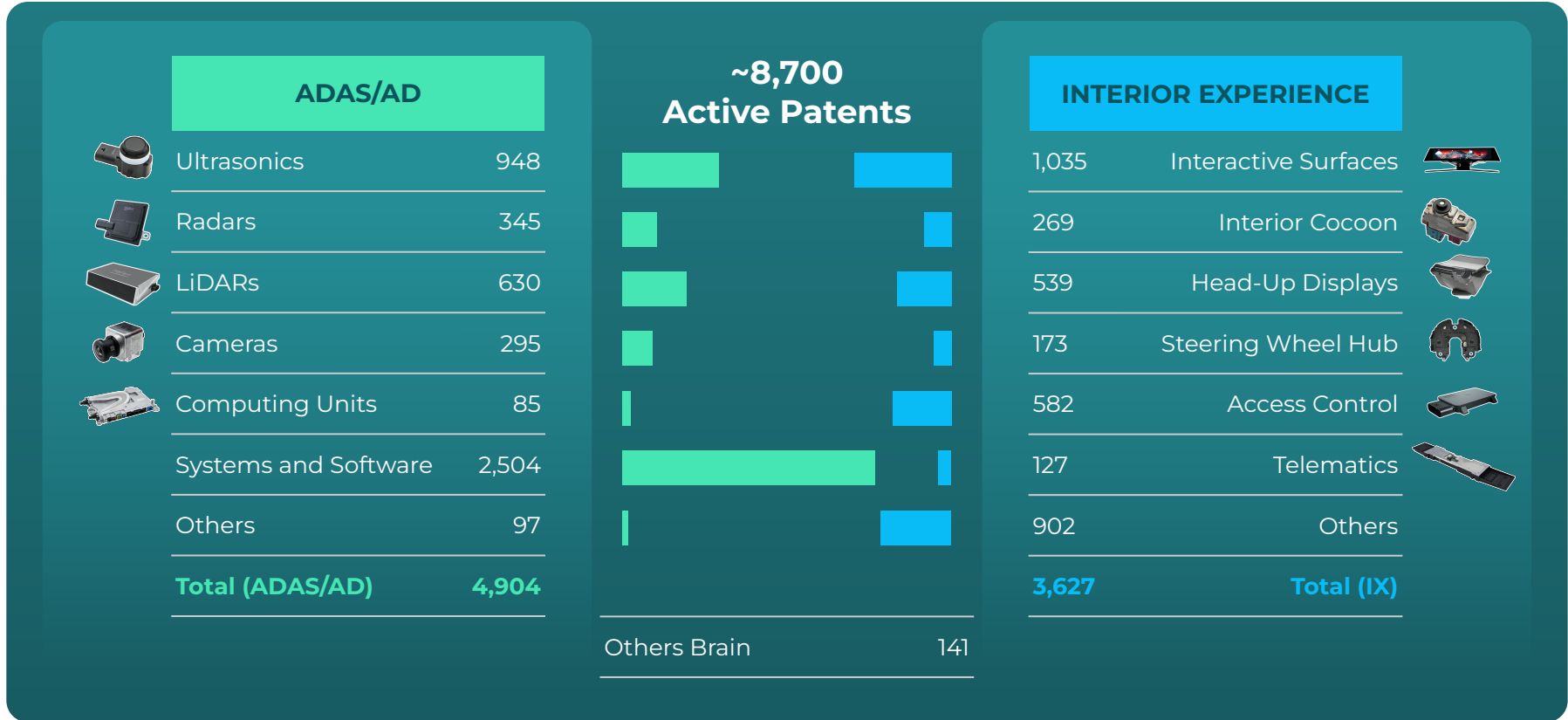**>150** Peta-bytes

DATA PLATFORM
to ingest, store, orchestrate & automate
growing volume of data
ensuring **quality** & **efficiency.**
Leveraging data to **create value**

1. HIL refers to Hardware-in-the-loop
2. SIL refers to Software-in-the-loop

Data Collection → Cleaning → Enrichment

Data requirements

Enrichment → Selection → Annotation

AI & Gen AI

Evaluation, Analysis & Report

RICH IP PORTFOLIO ACROSS ALL PRODUCT CATEGORIES

~8,700 Active Patents

ADAS/AD

Ultrasonics	948
Radars	345
LiDARs	630
Cameras	295
Computing Units	85
Systems and Software	2,504
Others	97
Total (ADAS/AD)	**4,904**

INTERIOR EXPERIENCE

1,035	Interactive Surfaces
269	Interior Cocoon
539	Head-Up Displays
173	Steering Wheel Hub
582	Access Control
127	Telematics
902	Others
3,627	**Total (IX)**

Others Brain	141

DEVELOPING A VIBRANT ECOSYSTEMS

"Western World"

SERVICES	Google · aws · luxoft · Capgemini · GlobalLogic (A Hitachi Group Company) · randstad digital
SOFTWARE	QNX · Pioneer · P3 · seeingmachines · KPIT · VECTOR · EB
COMPUTING UNITS	Qualcomm · mobileye · LEONI · RENESAS · TEXAS INSTRUMENTS · intel
DRIVING AUTOMATION SENSORS	FLIR · mobileye · SONY
INTERIOR EXPERIENCE DEVICES	SAINT-GOBAIN · nissha · TEXAS INSTRUMENTS · ZEISS · imec · paragon · OMNIVISION · ST · NI
CONNECTIVITY	Qualcomm · MEDIATEK · NXP · TEXAS INSTRUMENTS · COMPRION

DEVELOPING A VIBRANT ECOSYSTEMS 🇨🇳

China

SERVICES	Bai du 百度
SOFTWARE	PhiGent Robotics · momenta · DiDi · ArcSoft
COMPUTING UNITS	Horizon Robotics · 芯驰 SemiDrive · siengine · AXERA · MEDIATEK
DRIVING AUTOMATION SENSORS	OMNIVISION · CALTERAH · 舜宇车载光学 SUNNY AUTOMOTIVE OPTECH · LCE · FOCUSLIGHT · VERTILITE
INTERIOR EXPERIENCE DEVICES	Megatronix · iAUTO.COM · 盈趣汽车电子 Likego · TIANMA
CONNECTIVITY	QUECTEL · WNC · 纽瑞芯科技 NEW RADIO TECH · MEDIATEK

ROBUST S1 2024 : +2.2PTS EBITDA MARGIN YoY

Driven by Growth in ADAS and Interior Experience

Sales
€2,569 M*
+6% lfl growth in OEM Sales

+6pts
outperformance

ADAS
Sales €1,659M
+7% lfl growth in OEM Sales

Interior Experience
+4% lfl growth in OEM Sales

Business Highlights

- Production ramp-up in cameras
- Growth with Japanese and Korean OEMs
- Impact on margins of higher sales in ADAS & Interior Experience

* Including Top Column Module Business

Sales +5%

€2,448 M*

€2,569 M*

13.7%

15.9%

EBITDA Margin

EBITDA Margin

H1 2023

H1 2024

EBITDA Margin

ADAS	Interior Experience
16.6% | +0.6 pts YoY	**13.9%** | +4.9 pts YoY
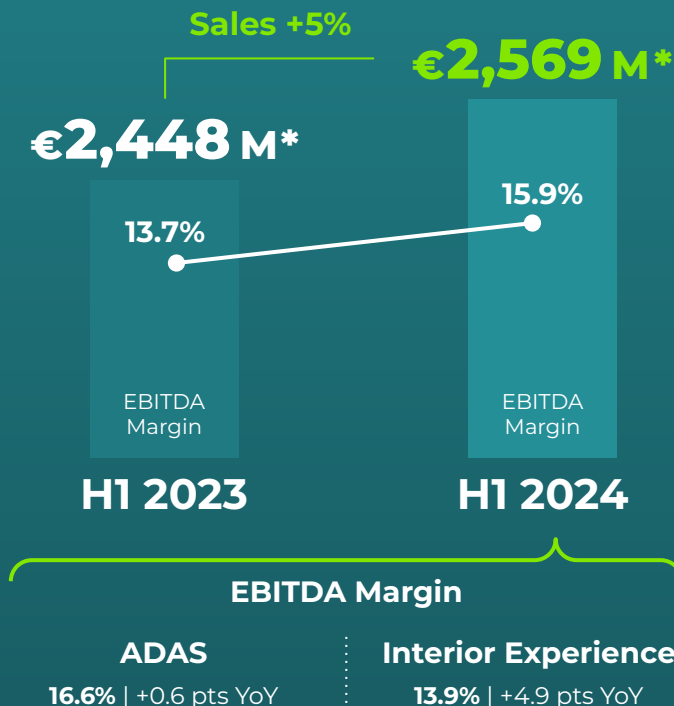
OUR ORGANIZATION TO SERVE OUR MARKETS

Division

VALEO BRAIN DIVISION

Product Groups

DRIVING AUTOMATION

INTERIOR EXPERIENCE

Product Lines

DETECT

VISION

LiDAR

COMPUTE

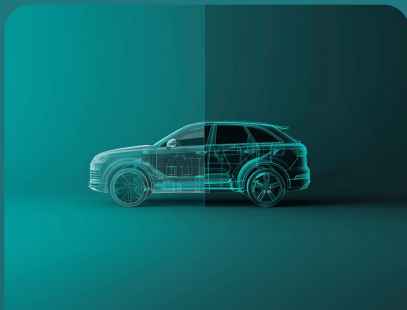**anSWer**

0 1 1 0
1 0 0 1

SENSE

COCKPIT

CONNECT
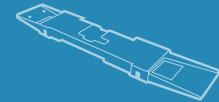
* As of January 1st 2025

SDV* : A PARADIGM SHIFT IN AUTOMOTIVE DESIGN

Where Software Becomes The Core Of Vehicle Functionality

BEYOND MECHANICS

Shift from hardware to software-centric developments

SAFETY & AUTOMATION

Algorithms and AI for safer and pleasant mobility

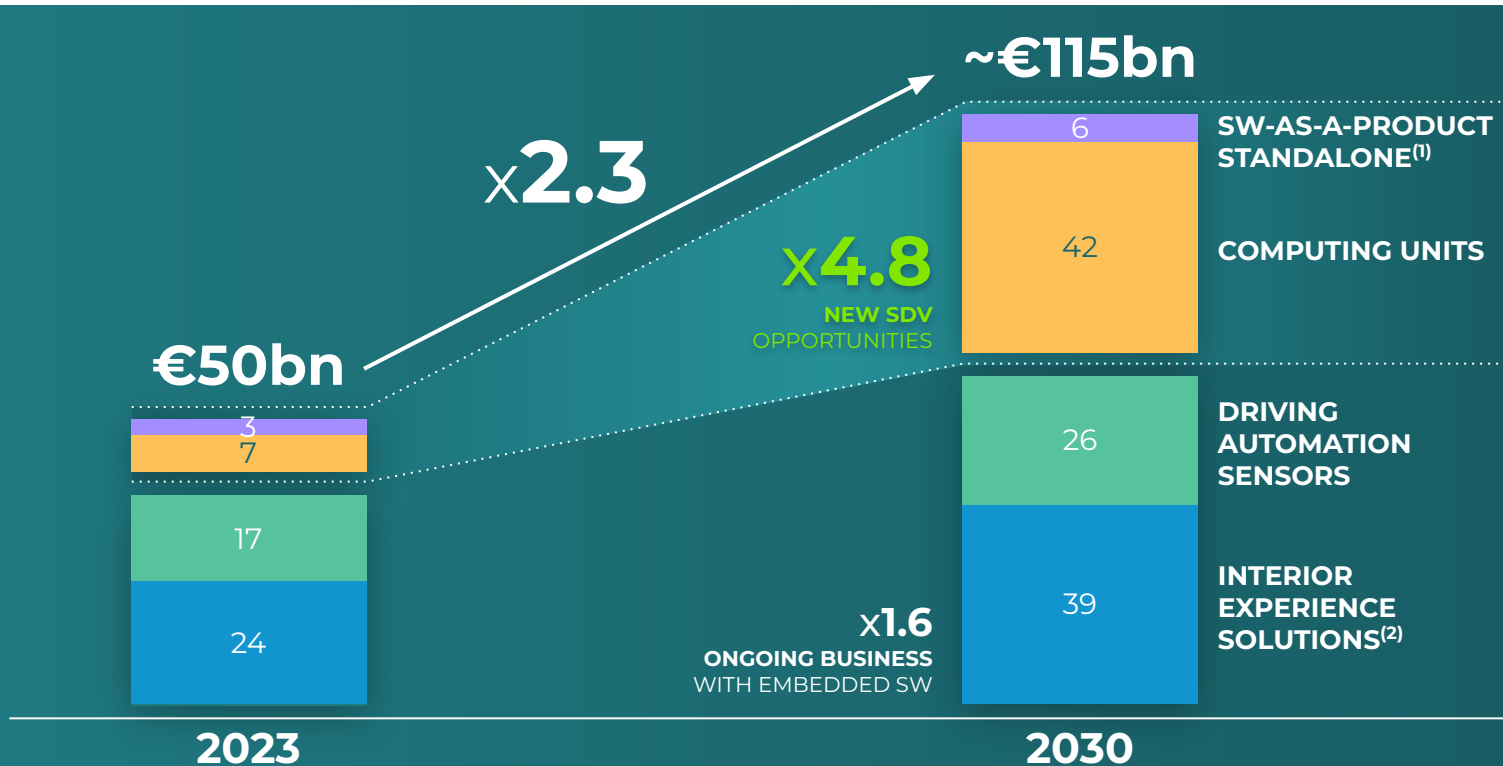## PERSONALIZED EXPERIENCE

Adapting to user preferences and needs

CONTINUOUS EVOLUTION

SW updates for new features and post purchase improvements

BRAIN IS AT THE HEART OF THE SDV TRANSFORMATION

* Software Defined Vehicle

A BOOMING MARKET BOOSTED BY THE SDV SHIFT


~€115bn

x2.3

€50bn

x4.8
NEW SDV
OPPORTUNITIES

SW-AS-A-PRODUCT STANDALONE[1] — 6

COMPUTING UNITS — 42

DRIVING AUTOMATION SENSORS — 26

INTERIOR EXPERIENCE SOLUTIONS[2] — 39

x1.6
ONGOING BUSINESS
WITH EMBEDDED SW

2023: 3 / 7 / 17 / 24

2030: 6 / 42 / 26 / 39

1. ADAS/AD Software and Addressable Middleware
2. Including Connectivity

BOOSTING BRAIN ACCESSIBLE CONTENT PER CAR

Accessible Computing Units' Average Content per Car Multiplied by 10 from Distributed to Fully Centralized Architectures
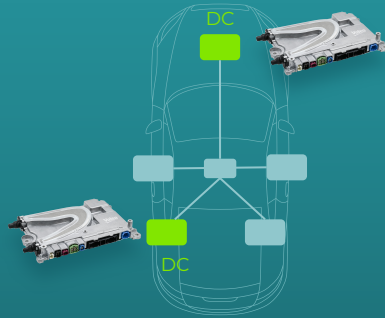

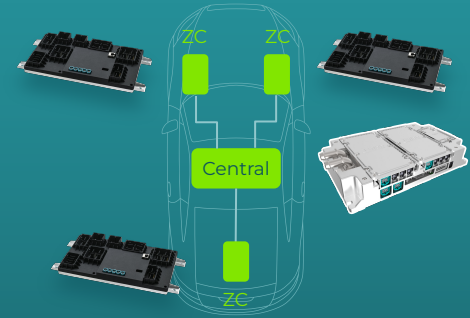*Valeo Offer*

up to **150€**
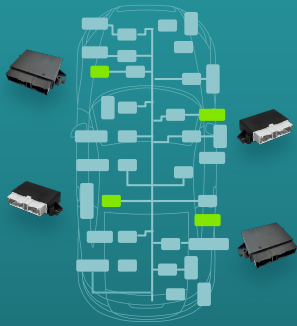
up to **500€**

up to **1,500€**

DISTRIBUTED ARCHITECTURE

CENTRALIZED ARCHITECTURE

DOMAIN
CONTROLLERS

CENTRAL & ZONE
CONTROLLERS

TODAY

2028

2030

MODULAR COMPUTE CLUSTER ARCHITECTURE

SoC 1 Cartridge

SoC 2 Cartridge

Memory Cartridge

Central Backbone

Zonal Aggregator(s)

Zonal Aggregator(s)

Zonal Aggregator(s)

Zonal Aggregator(s)
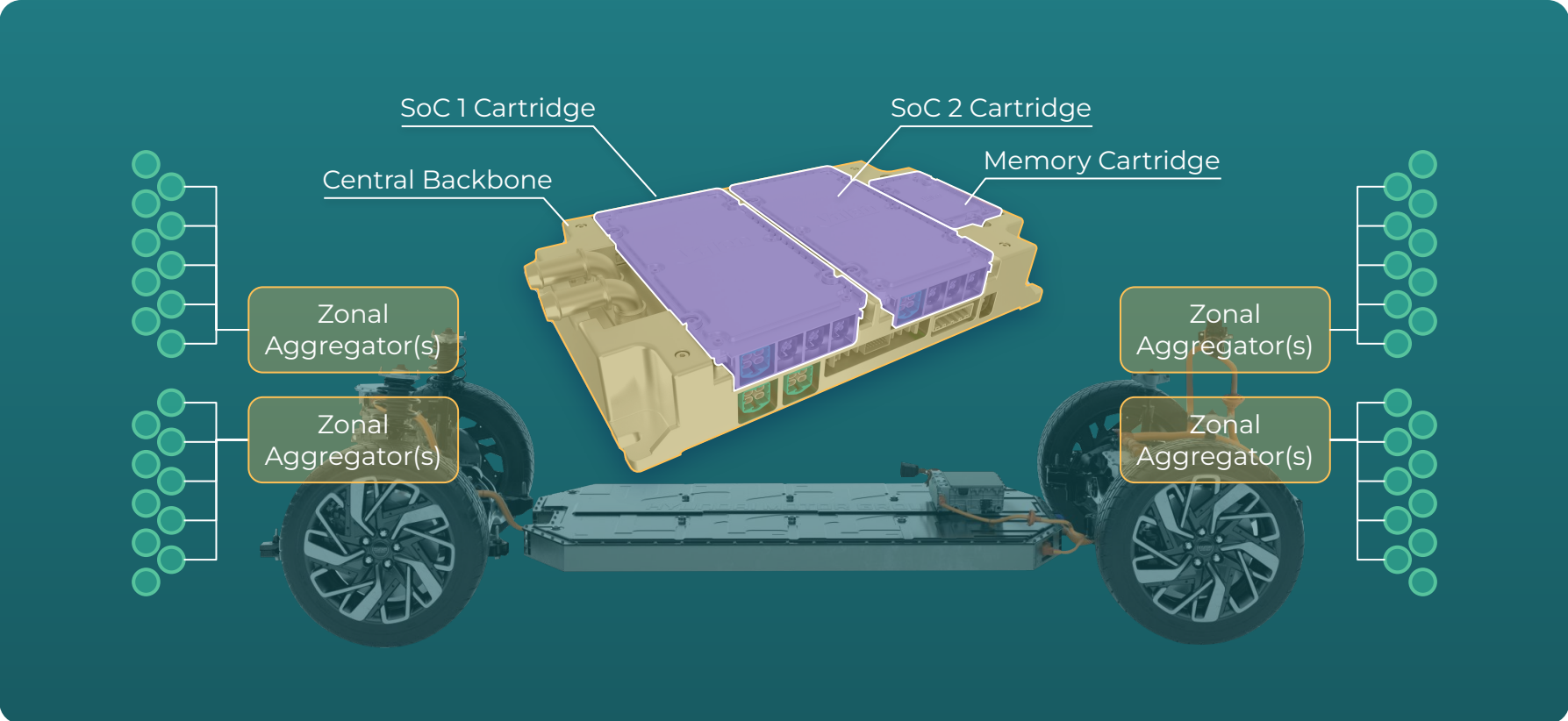
CAPTURING THE TRANSFORMATIVE COMPUTING UNITS MARKET

ZONE CONTROLLER

- High-speed data transfer and power distribution management across vehicle zones
- Strong partnership with Leoni
- Power dissipation and load balancing optimization
- "Smart fuse" functionality and support for multiple communication protocols
- Simplifies vehicle architecture - pivotal in reducing vehicle weight and CO_2 emissions

DOMAIN CONTROLLER

- Scalable, high-performance solution for centralized computing in ADAS
- Designed to reduce vehicle complexity and emissions
- Tailored solutions with adaptable computational power
- Supports a broad sensor suite and advanced thermal management
- Compliance to high safety standards up to ASIL D[1]

CENTRAL COMPUTER
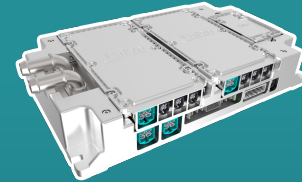
- Ultimate centralization of computing power
- All domains in one device for vehicle architecture optimization
- Scalable design for massive transversal-wide implementation
- Silent advanced thermal management with liquid and passive cooling
- Long-standing experience in connectors inherited from vision controller know-how
- Compliance to high safety standards up to ASIL D[1]

2028:   **12%** 🥈[2]

1. ASIL refers to Automotive Safety Integrity Level
2. Refers to 2030E market position

% 2028 Valeo Market Share   🏆 Leader   🥈 Top 3   📈 Challenger

3 BOOSTERS TO SAFETY AND CAR AUTOMATION

REGULATION

NCAP SAFETY RATINGS

INNOVATION

MERCEDES DRIVE PILOT

Regulation is a long process but makes over time ADAS features mandatory

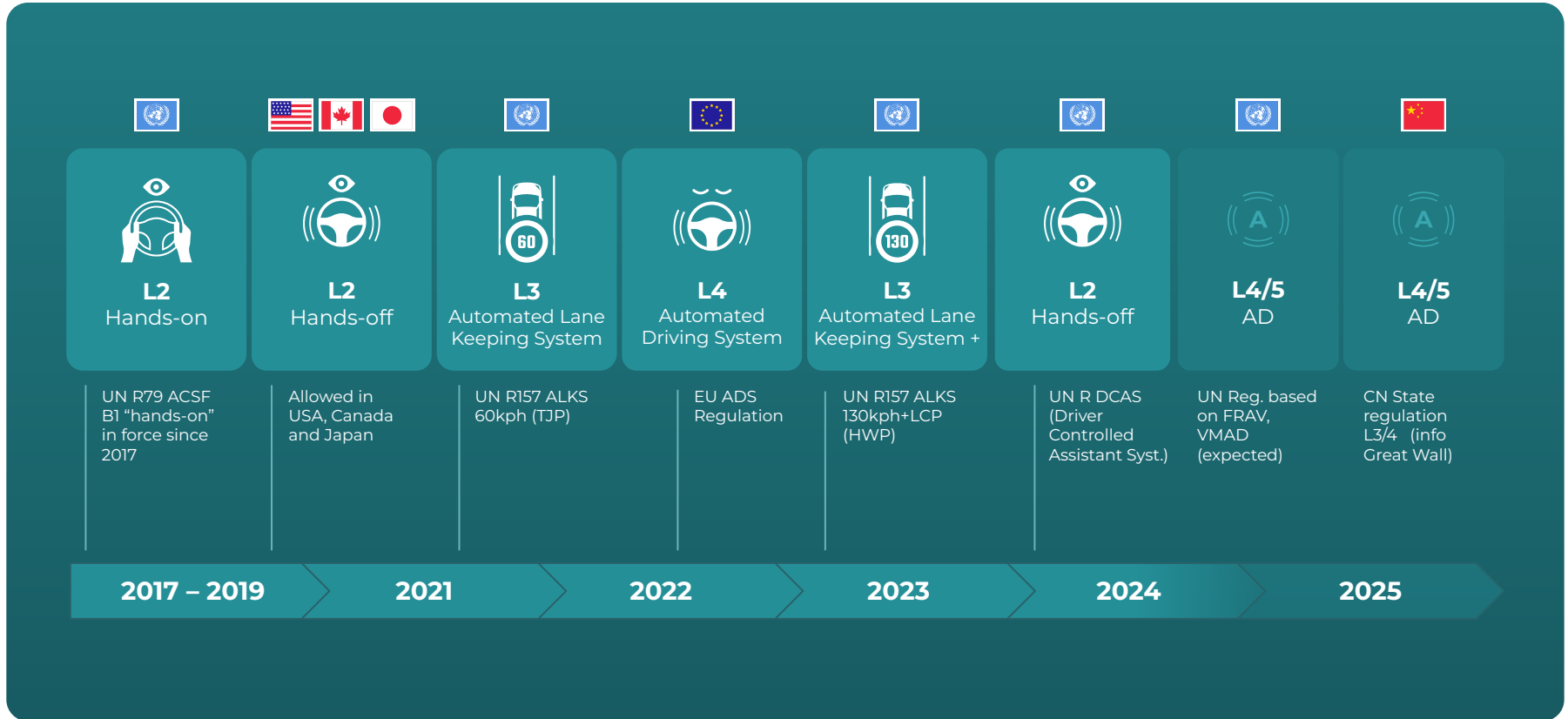**EURONCAP, which has a strong influence on car models' reputation, now rates ADAS**

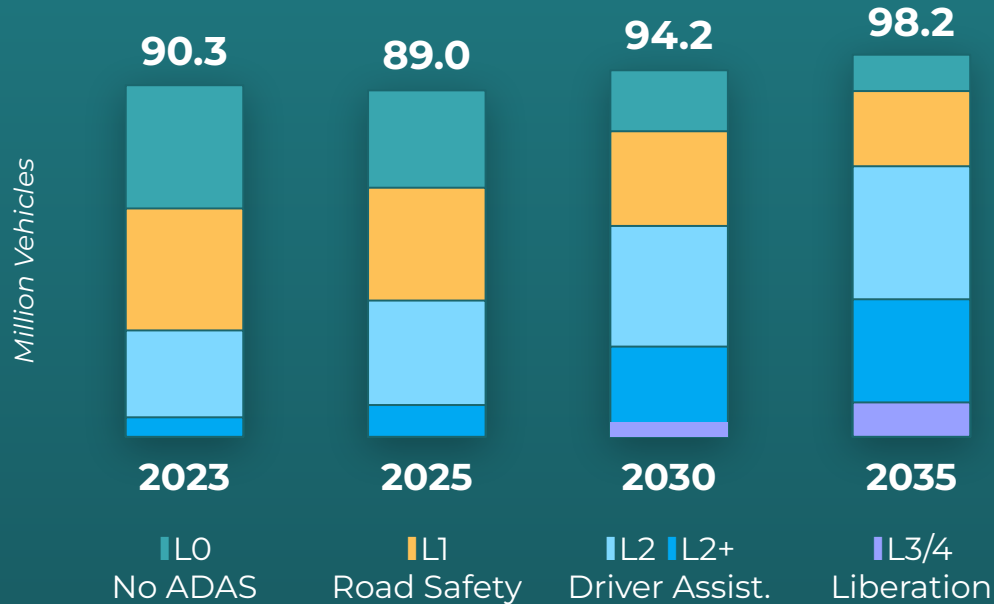**ADAS and Automation are strong differentiators for innovative brands**

UP TO A GLOBAL ADOPTION OF HIGHLY AUTOMATED VEHICLES

L2 Hands-on	**L2** Hands-off	**L3** Automated Lane Keeping System	**L4** Automated Driving System	**L3** Automated Lane Keeping System +	**L2** Hands-off	**L4/5** AD	**L4/5** AD
UN R79 ACSF B1 "hands-on" in force since 2017	Allowed in USA, Canada and Japan	UN R157 ALKS 60kph (TJP)	EU ADS Regulation	UN R157 ALKS 130kph+LCP (HWP)	UN R DCAS (Driver Controlled Assistant Syst.)	UN Reg. based on FRAV, VMAD (expected)	CN State regulation L3/4 (info Great Wall)
2017 – 2019	**2021**	**2022**		**2023**	**2024**	**2025**	

MARKET BY AD LEVEL

'PRIVATELY OPERATED VEHICLES' BY SAE LEVEL

Million Vehicles

2023	2025	2030	2035
90.3	89.0	94.2	98.2

L0
No ADAS

L1
Road Safety

L2 L2+
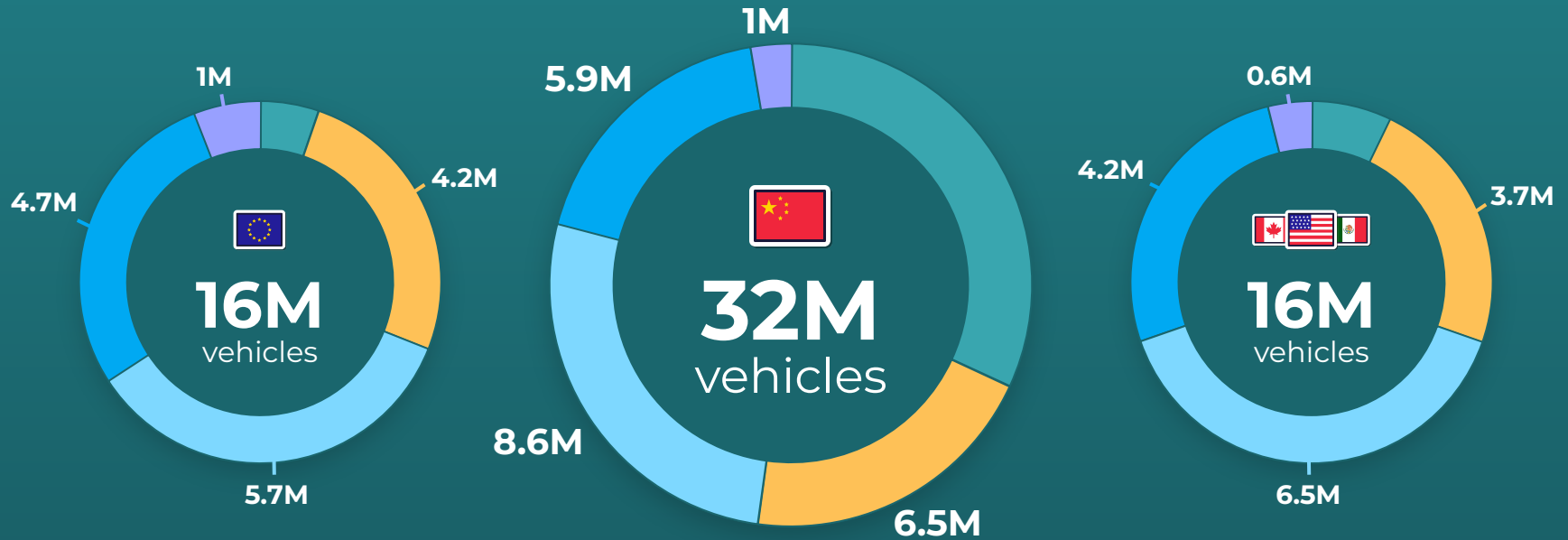Driver Assist.

L3/4
Liberation

Road Safety becomes standard
(65% in 2025, 90% by 2035)

Driver Assistance (L2/L2+) is the dominant segment
(40% in 2025, 62% by 2035)

Driver Liberation (L3/4) further delayed
(0.1% by 2025, 9% by 2035)

Driverless (L4) in personal cars to start with AVP-type features (not shown in this graph)
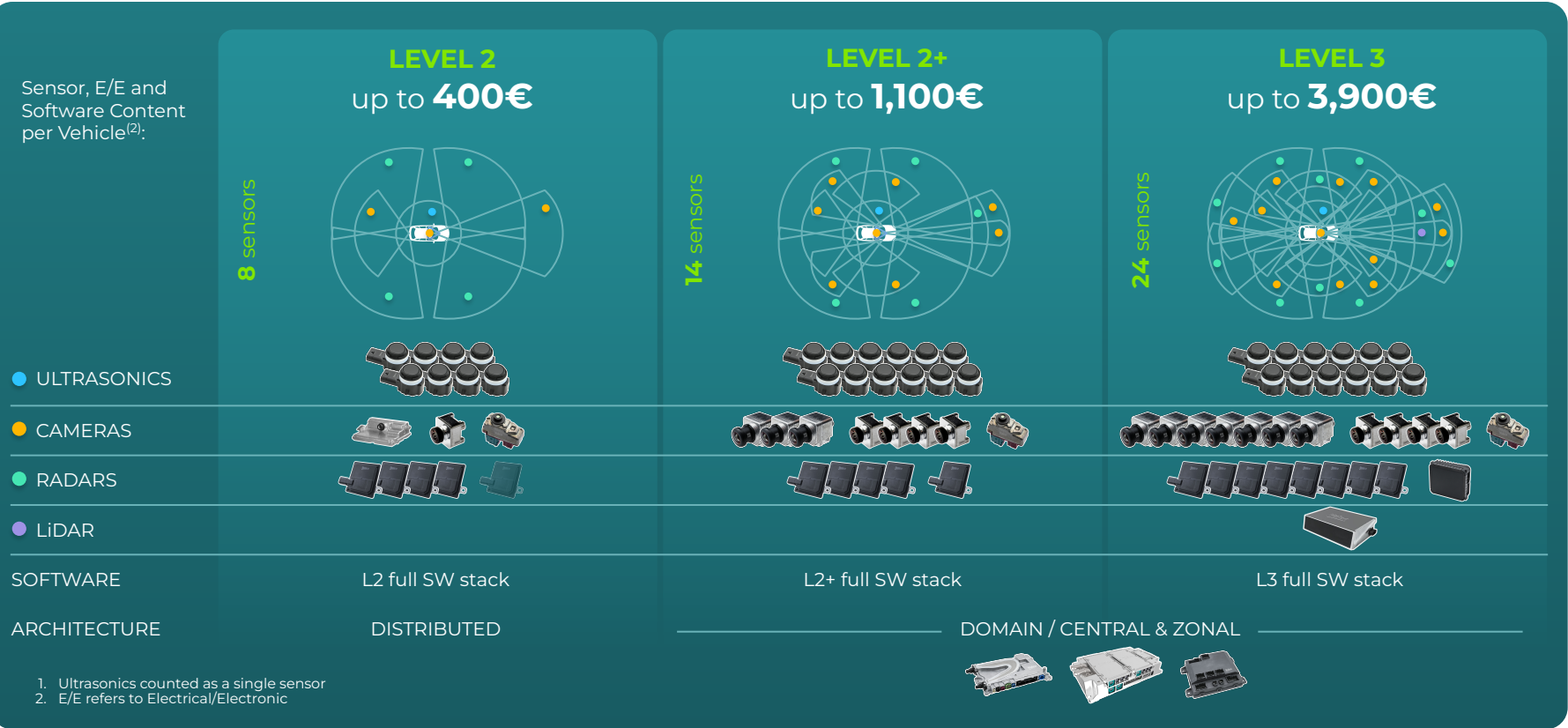
POV[1] MARKET BY AD LEVEL IN 2030

European Union
16M vehicles
- 1M
- 4.2M
- 4.7M
- 5.7M

China
32M vehicles
- 1M
- 5.9M
- 8.6M
- 6.5M

North America
16M vehicles
- 0.6M
- 4.2M
- 3.7M
- 6.5M

Legend: No ADAS · L1 · L2 · L2+ · L3/4

1. Privately Operated Vehicles

HIGHER LEVEL OF AUTONOMY

Boosting BRAIN Accessible Content Per Car

Sensor, E/E and Software Content per Vehicle[2]:

	LEVEL 2 up to **400€**	LEVEL 2+ up to **1,100€**	LEVEL 3 up to **3,900€**
	8 sensors	14 sensors	24 sensors
● ULTRASONICS			
● CAMERAS			
● RADARS			
● LiDAR			
SOFTWARE	L2 full SW stack	L2+ full SW stack	L3 full SW stack
ARCHITECTURE	DISTRIBUTED	DOMAIN / CENTRAL & ZONAL	

1. Ultrasonics counted as a single sensor
2. E/E refers to Electrical/Electronic

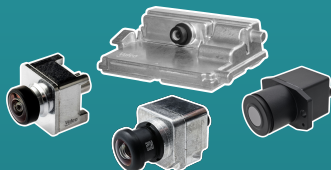# ADAS BENCHMARK TECHNOLOGY PORTFOLIO

ULTRASONIC SENSORS

- **Invented by Valeo over 30 Years ago** and remains the undisputed market leader
- AI-based USV10 data interface enabling **software-defined validation**[1]
- Next-gen USV10.2 reduces harness weight and lowering CO2 footprint

50% 🏆

CAMERAS

- **Smart Front Camera**: Key component in ADAS and AD systems. Powered by Mobileye's EyeQ and Infineon technology
- Leader in **satellite camera technology**
- **360-degree visibility**, driving safety and convenience
- Advanced **thermal imaging**, to detect pedestrians, animals and obstacles on the road

25% 🏆

RADARS

- **Pioneer** in Mid-Range Radar Sensor technology
- Solutions for both ADAS and Automated Parking applications
- Cutting-edge radar technology backed by **30 years of expertise** and strong industry partnerships
- **Mobileye** and **Valeo** partnering to deliver **next-gen imaging radars**

5% 🏆

LiDARS

- Long Range LiDAR enabling **130kph L3-L4 automation**
- High performance point cloud validated through several orders
- **SCALA™ Gen 3** offer superior range-resolution at 12.5 million points/s
- Reliable small objects detection for high speed highway driving

25%[2] 🏆   **40%**[3] 🏆

1. AI refers to Artificial Intelligence
2. Refers to the global market share
3. Refers to the global market share excluding China
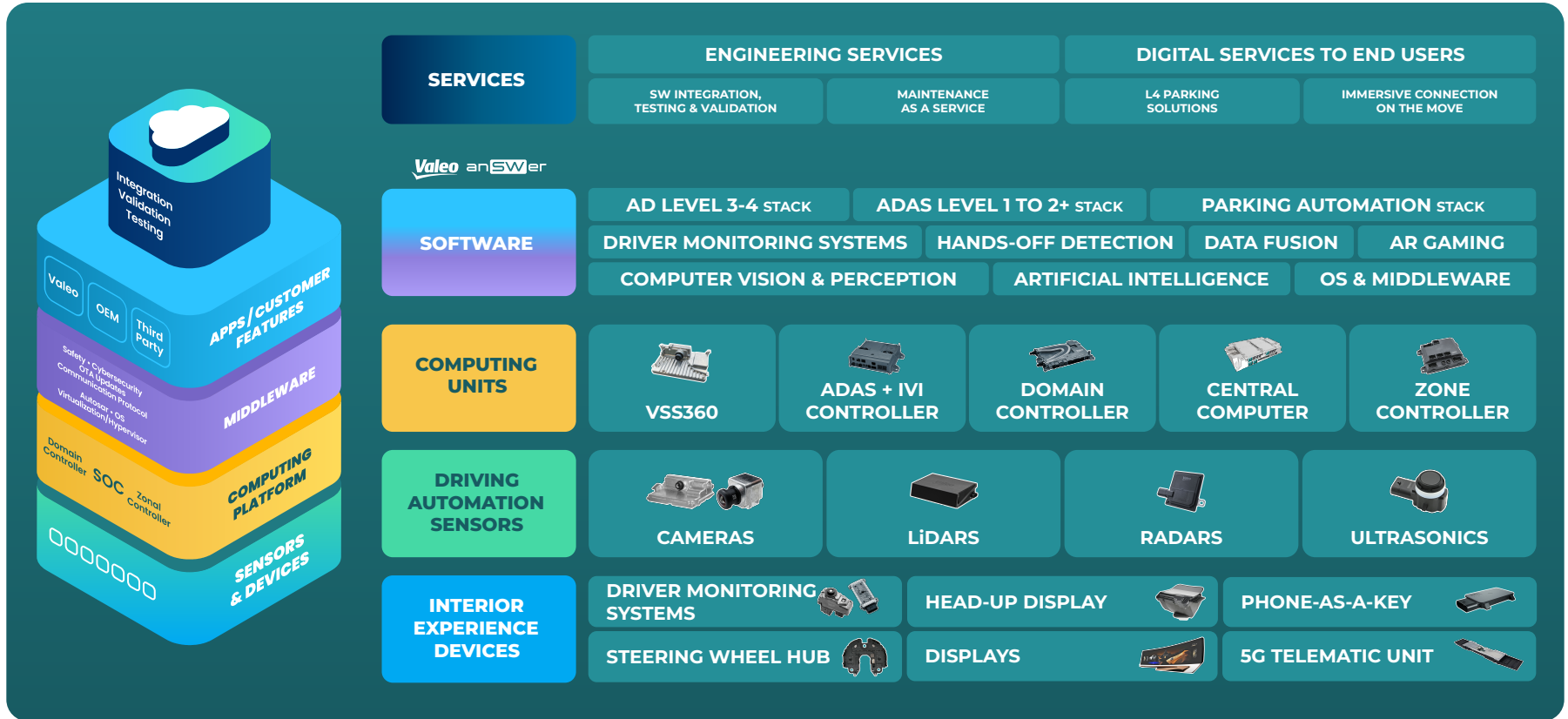
% 2028 Valeo Market Share   🏆 Leader   Top 3   Challenger

OFFERING THE FULL VERTICAL FROM COMPONENTS TO SERVICES

SERVICES	ENGINEERING SERVICES		DIGITAL SERVICES TO END USERS	
	SW INTEGRATION, TESTING & VALIDATION	MAINTENANCE AS A SERVICE	L4 PARKING SOLUTIONS	IMMERSIVE CONNECTION ON THE MOVE

Valeo anSWer

SOFTWARE	AD LEVEL 3-4 STACK	ADAS LEVEL 1 TO 2+ STACK	PARKING AUTOMATION STACK	
	DRIVER MONITORING SYSTEMS	HANDS-OFF DETECTION	DATA FUSION	AR GAMING
	COMPUTER VISION & PERCEPTION	ARTIFICIAL INTELLIGENCE	OS & MIDDLEWARE	

COMPUTING UNITS	VSS360	ADAS + IVI CONTROLLER	DOMAIN CONTROLLER	CENTRAL COMPUTER	ZONE CONTROLLER

DRIVING AUTOMATION SENSORS	CAMERAS	LiDARS	RADARS	ULTRASONICS

INTERIOR EXPERIENCE DEVICES	DRIVER MONITORING SYSTEMS	HEAD-UP DISPLAY	PHONE-AS-A-KEY
	STEERING WHEEL HUB	DISPLAYS	5G TELEMATIC UNIT

DELIVERING CONNECTED & IMMERSIVE INTERIOR EXPERIENCE SOLUTIONS

ADAS and IX Combine to Deliver Enhanced Safety, Ease of Use and Interactivity

INTERIOR COCOON

Driver and cabin monitoring for enhanced safety

2028: **21%** 🏆
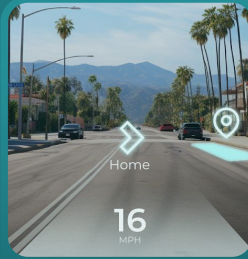
HEAD-UP DISPLAY

AR HUD provides the driver with key information at the right place[1]

2028: **13%** [2]

PHONE AS A KEY

Ultra-Wideband Phone-As-A-Key or key fob bring comfort and security

2028: **11%** 📈

STEERING WHEEL HUB

Hand-Off detection for reliable transition from ADAS to AD

2028: **18%**

INTERACTIVE SURFACES

Seamless wide displays and smart surfaces for intuitive HMI[3]

2028: **5%** 📈
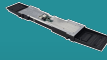
TELEMATICS

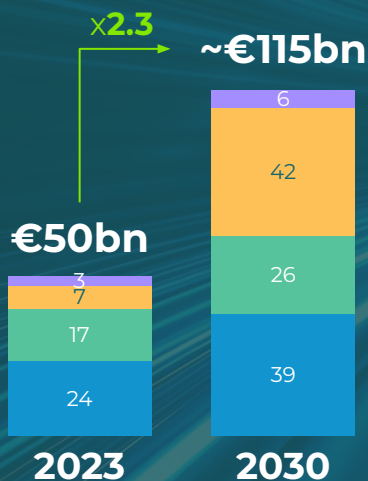Connectivity for connected ADAS/AD and connected people

2028: **12%**

1. AR HUD refers to Augmented Reality Head-Up Display
2. Refers to 2030E market position
3. HMI refers to Human-Machine Interface

% 2028 Valeo Market Share   🏆 Leader   Top 3   📈 Challenger

BRAIN DIVISION IS PERFECTLY POSITIONED
TO CAPTURE THE HUGE MARKET OPPORTUNITY

x**2.3**

~€115bn

€50bn

2023	2030
3	6
7	42
17	26
24	39

SOFTWARE

AD LEVEL 3-4 STACK	ADAS LEVEL 1 TO 2+ STACK	PARKING AUTOMATION STACK
DRIVER MONITORING SYSTEMS	HANDS-OFF DETECTION	DATA FUSION	AR GAMING
COMPUTER VISION & PERCEPTION	ARTIFICIAL INTELLIGENCE	OS & MIDDLEWARE

COMPUTING UNITS

DRIVING AUTOMATION SENSORS

INTERIOR EXPERIENCE DEVICES

Valeo

ADAPTING TO UNCERTAINTY

POWERTRAIN AGNOSTIC

MODEL AGNOSTIC

GEOGRAPHICALLY & CUSTOMER BALANCED

STRONG ECOSYSTEMS

STRONG OPERATIONAL FOCUS

PERFORMANCE AND QUALITY FOCUS

RESILIENT SUPPLY CHAIN

AGILE OPERATIONS

AI-BOOSTED WORLD

ON-TIME CUSTOMER PROJECT DELIVERY

DISCIPLINED EXECUTION AND MONITORING