





# Welcome to the Melexis capital markets day 2023



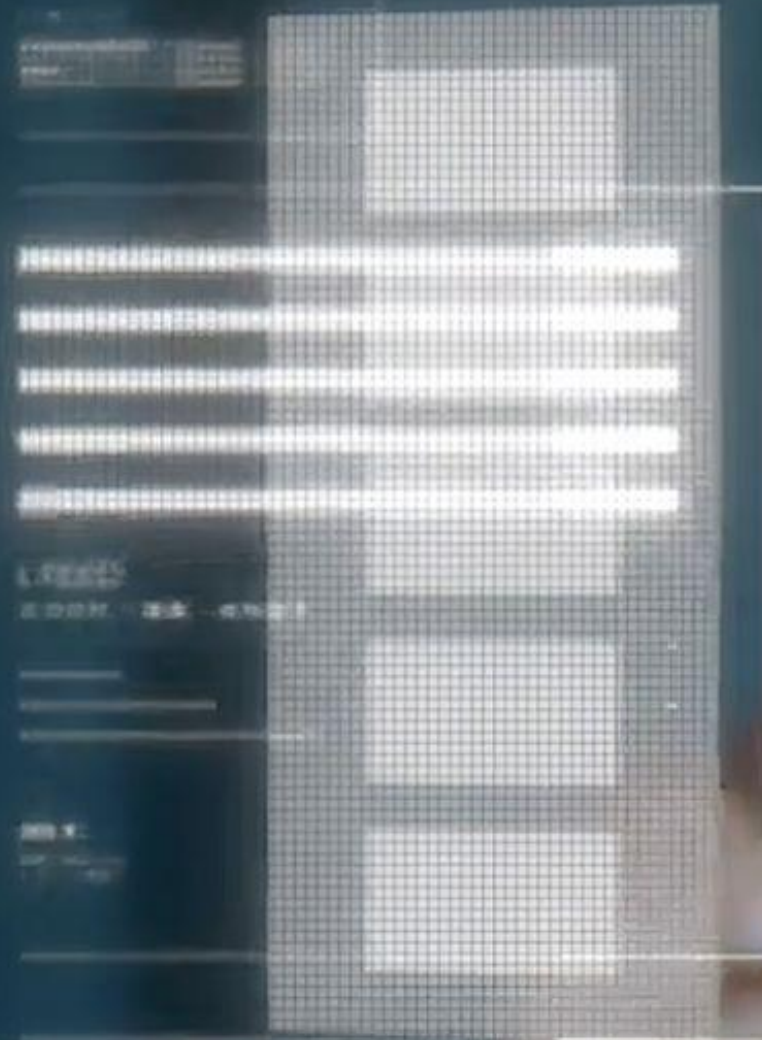
**Disclaimer :** Except for those statements that report the Company's historical results, the statements being made are forward looking statements. Actual results could differ materially from those projected in the forward looking statements. Factors which could cause actual results to differ from expectations include the following: volatility in supply and demand affecting revenues and market prices, price and availability of silicon foundry, assembly and test prices, assembly and test subcontract capacity required to meet financial targets and/or meet backlog requirements, risks and delays associated with bringing up new production capabilities or with deliveries from subcontractors, timing and market acceptance of new products, increased expenses associated with new product acceptance of new products, increased expenses associated with new product introductions of process changes, delays in developing or achieving volume production of new products, which can result in delays or failure to contribute to revenues and profits, ability of the Company to maintain its customer and vendor base and delays in and/or inability in raising additional capital.

# Agenda

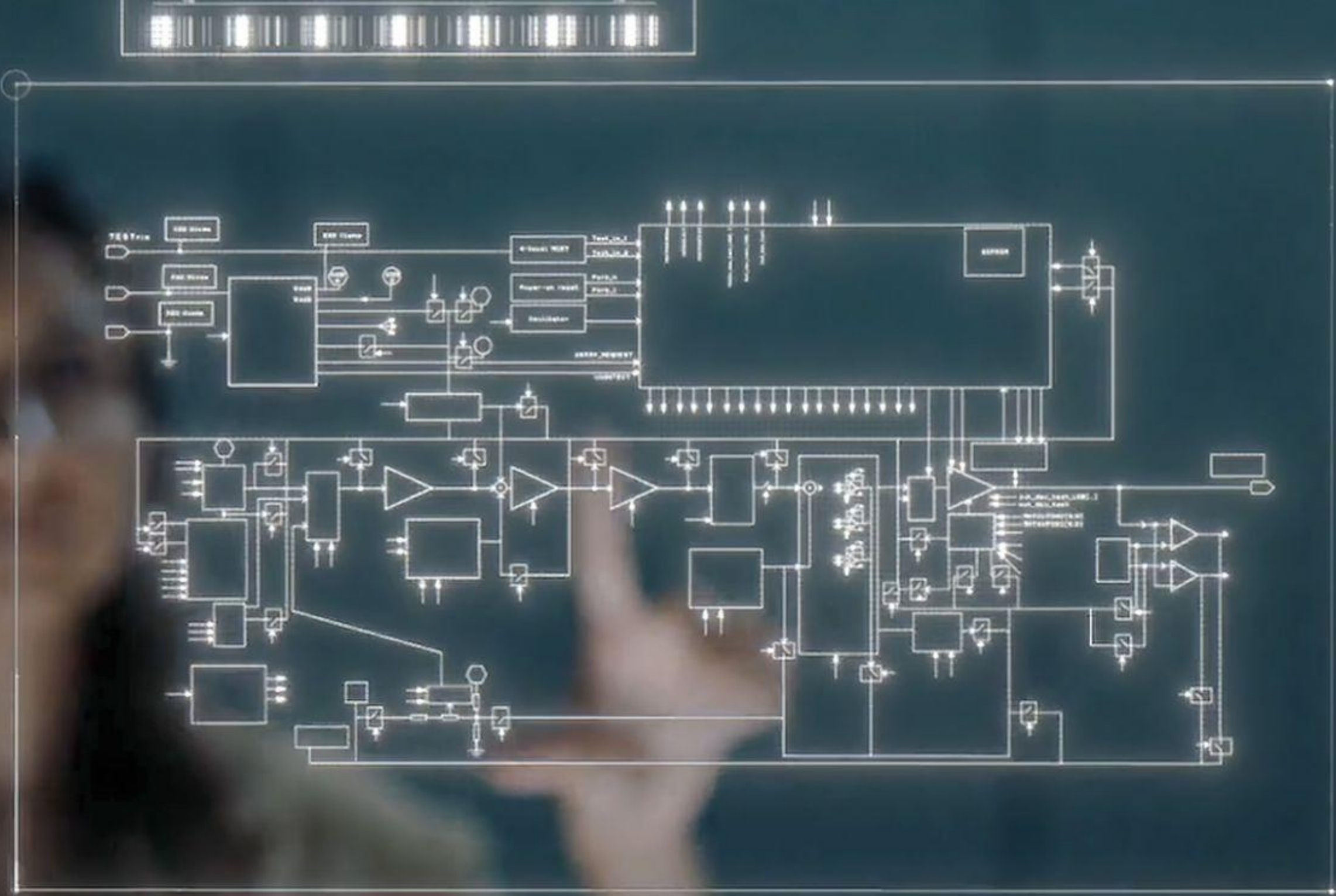
09:30	Arrival and coffee	
10:00	Welcome and introduction Melexis' playground for the next 5 years	Marc Biron, Vincent Hiligsmann and Karen van Griensven
10:45	Break	
11:00	EV powertrain	Syrine Mansour and Bruno Boury
11:15	EV thermal management	Laurent Otte and Marc Lambrechts
11:30	EV battery	Magnus Ahlstedt
11:45	E-braking and E-steering	Antonius Duisters and Karen Stinckens
12:00	Lighting	Michael Bender
12:15	Questions from the audience	
12:45	Lunch	
13:15	Beyond automotive	Vincent Hiligsmann and Gael Close
14:00	Questions from the audience	
14:15	Conclusion	Marc Biron
14:30	Rotation in groups: Production tour, demos and networking reception	
17:00	End of the day	

1-1-100

A control panel featuring a grid of buttons on the left and a circular dial on the right. The dial has a central needle and is surrounded by a ring of markings.



A vertical column of five circular gauges or indicators, each with a central needle and a ring of markings.

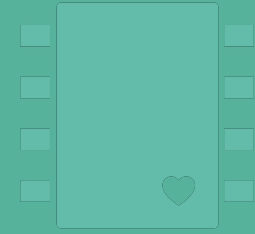


A control panel with four horizontal bars and numerical labels: 6001 0024, 1120 1100, 8022 1014, 8000 0100, and 8790 0100. Each bar has a series of small indicators or lights.

A data analysis and monitoring interface with multiple sections. It includes a 'DATA ANALYSIS' section with a table of values, a 'MONITORING' section with a grid of data points, and a 'SYSTEM STATUS' section with various indicators and text.

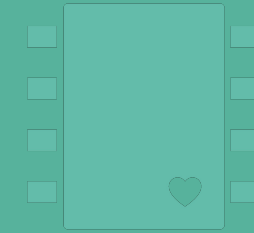
A control panel with a grid of buttons and a circular dial, similar to the top-left panel. It also features a small square indicator on the right side.

# Trends



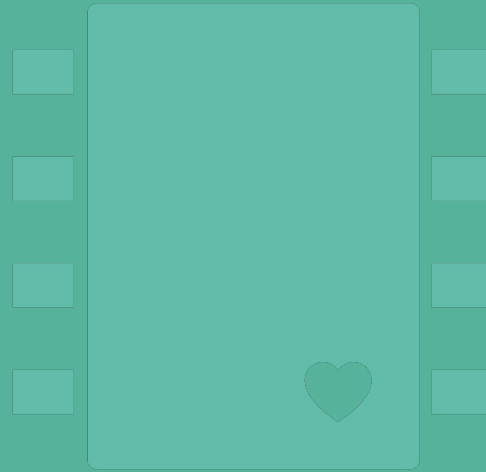
## Electrification

Electrification



## China's EV leadership

China's EV leadership

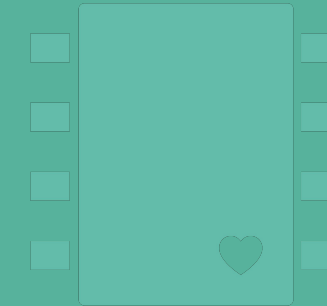


## Climate change

Climate change

## Competition for talent

Competition for talent

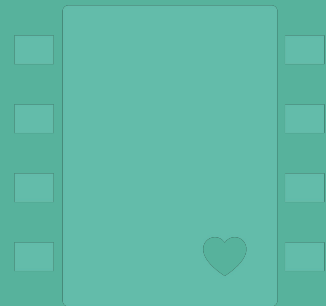
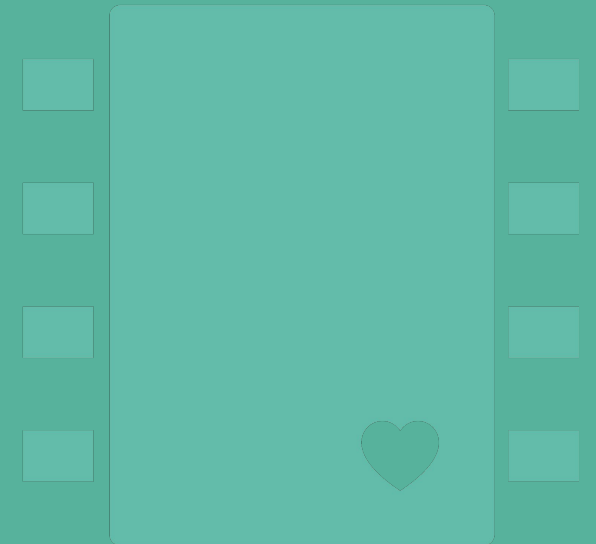


## Aging and increasing world population

Aging and increasing world population

Artificial intelligence

## Artificial intelligence



Changing mobility

## Changing mobility

Artificial intelligence

## Artificial intelligence

# Strategy

## Technology

Automotive industry → Innovation → New applications

Beyond automotive → Digital health, Robotics,  
Alternative mobility, Sustainable world

## Partnerships

Customers, suppliers, research and educational world

Increased knowledge, broadening horizons, sharing  
inspiration

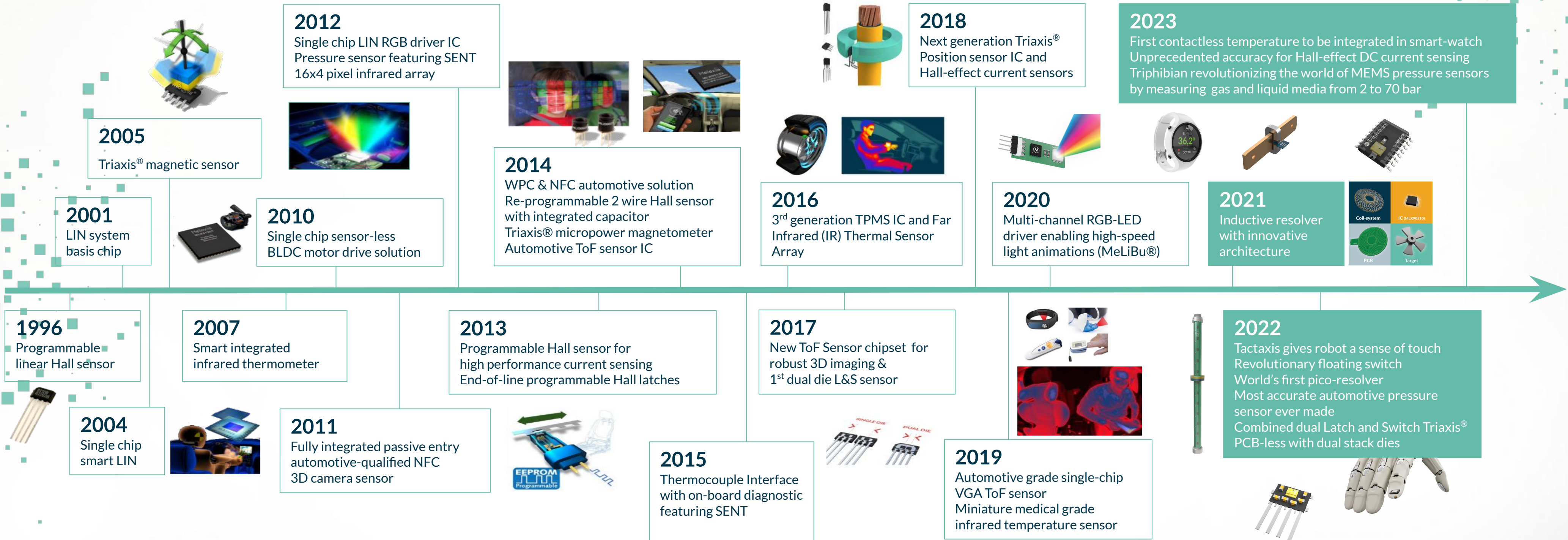
## People

Attract the best imaginable talent

A vibrant, exciting and inclusive work  
environment

# Innovation with Heart

# Industry first from Melexis



System status indicators and a digital display. The display shows "1-1-1000".

A large grid-based data visualization or control panel with various horizontal bars and patterns.

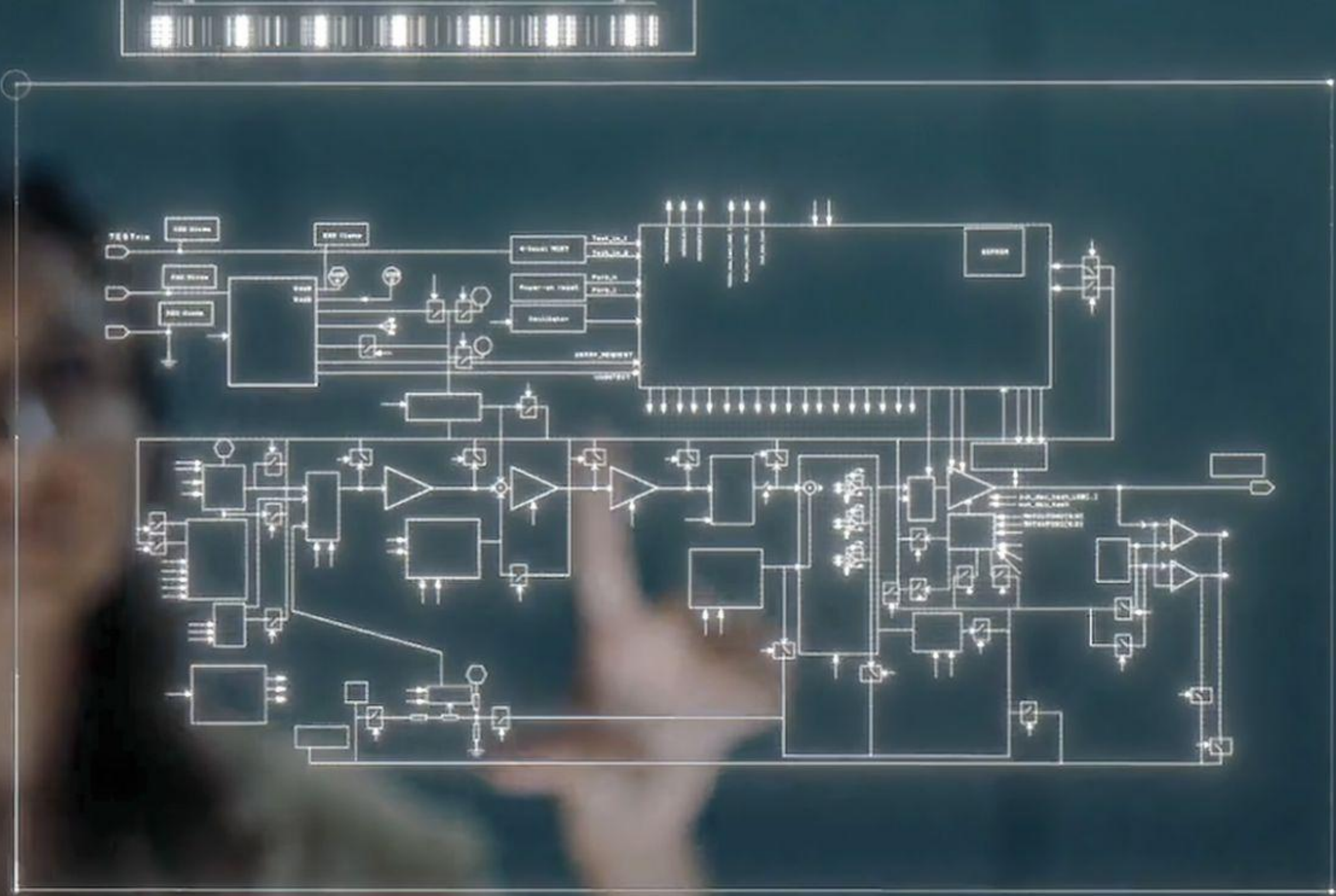
System logs and data analysis tables.

TIME	STATUS	DETAILS
10:00:00	OK	System initialized
10:00:05	WARN	Temperature rising
10:00:10	ERR	Communication failure

PARAMETER	VALUE	UNIT
TEMPERATURE	45.2	°C
PRESSURE	101.3	kPa
VOLTAGE	12.0	V

A vertical column of five circular gauges or indicators, each showing a different pattern or level.

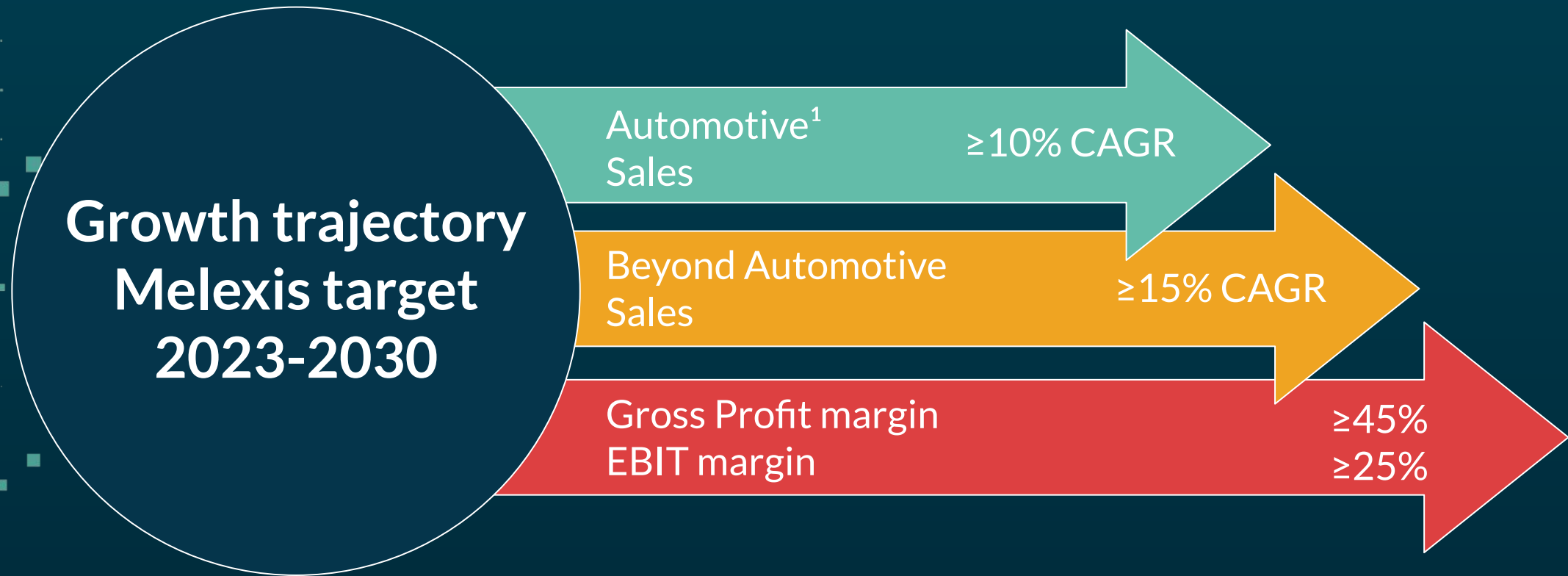


A vertical column of four data bars with numerical labels on the left.

0001	0024	████████████████████
1120	1100	████████████████████
0092	1014	████████████████████
0000	0100	████████████████████
0070	0100	████████████████████

A horizontal control panel with several rectangular buttons and a small display area.





## Growth drivers

- EV powertrain
- EV thermal management
- EV battery
- E-braking & E-steering
- Lighting
- Sustainable World
- Alternative Mobility
- Robotics
- Digital Health

(<sup>1</sup>) Assumption: 0% growth for the global vehicle production

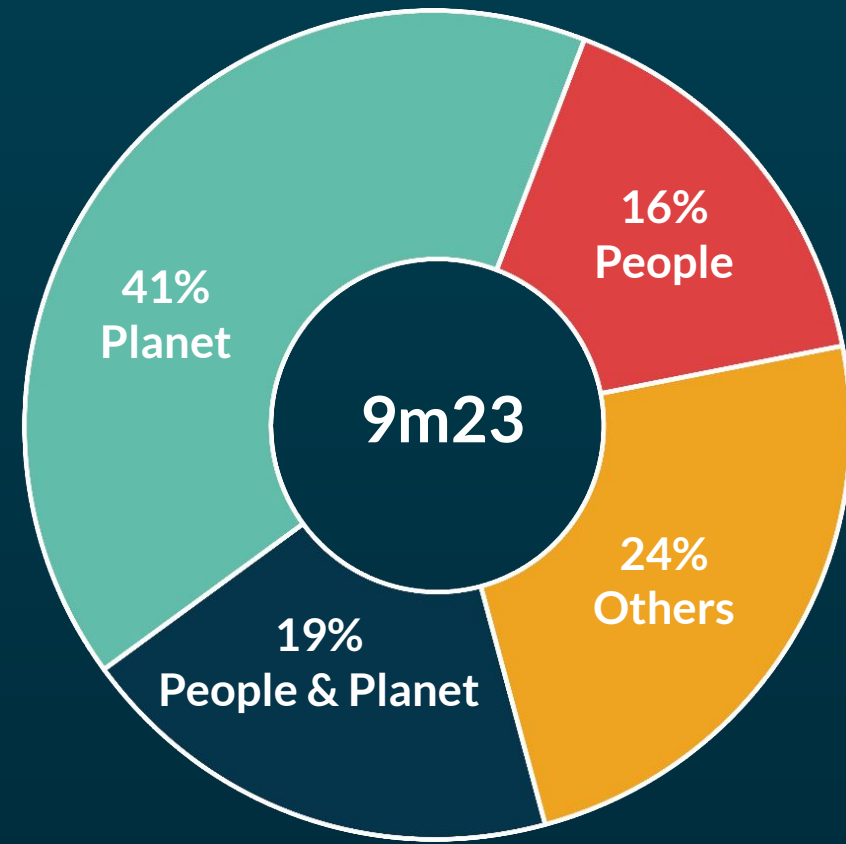
# New Kuching building answers to global challenges



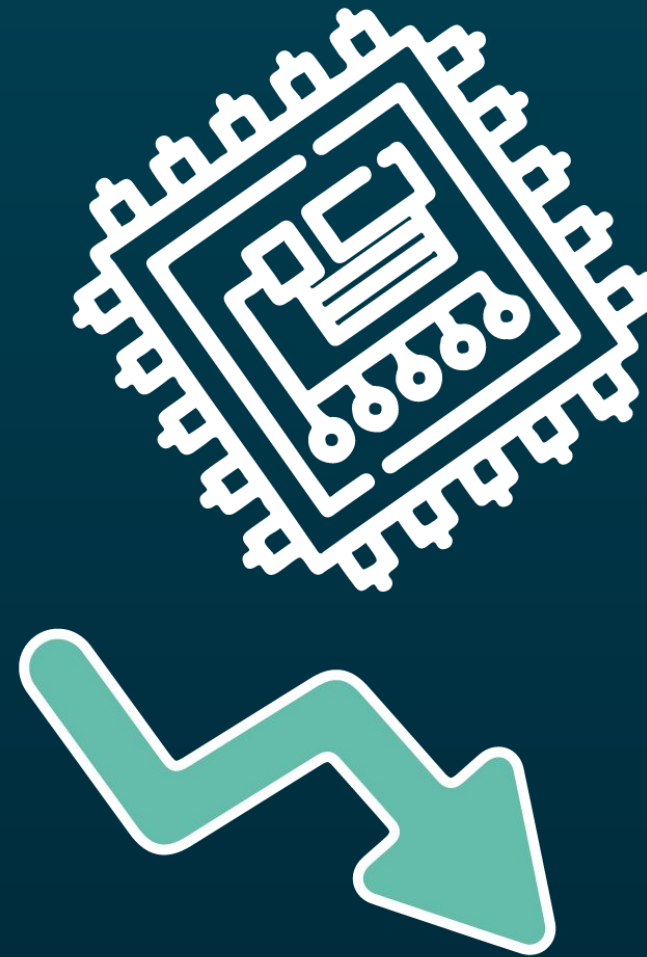
# Sophia-Antipolis



# ESG



**Sustainable Portfolio  
(% Sales)**



**40% less CO<sub>2</sub> emissions  
per chip by 2030**



**Board of directors (50/50)**

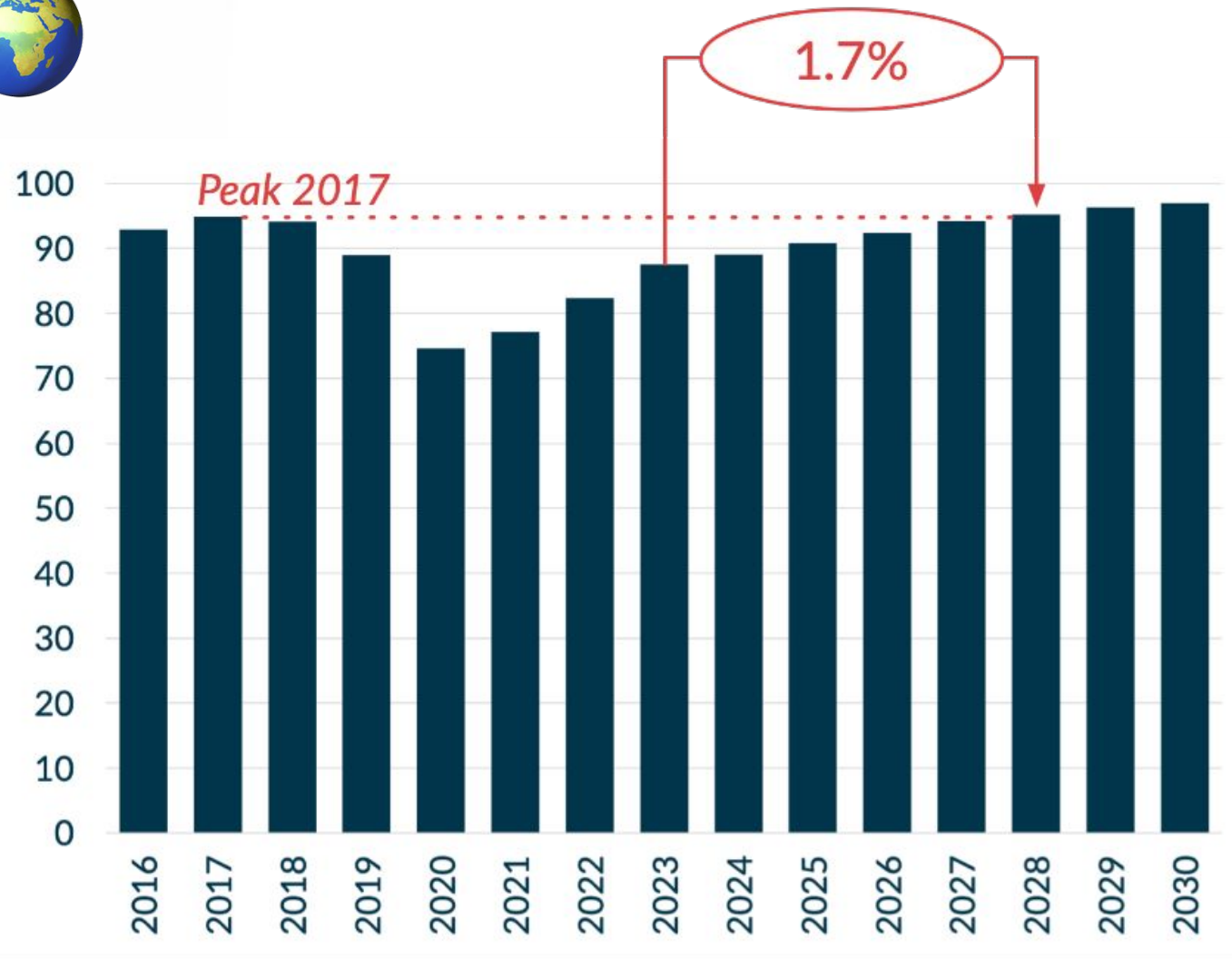
AUTOMOTIVE



# Automotive Market



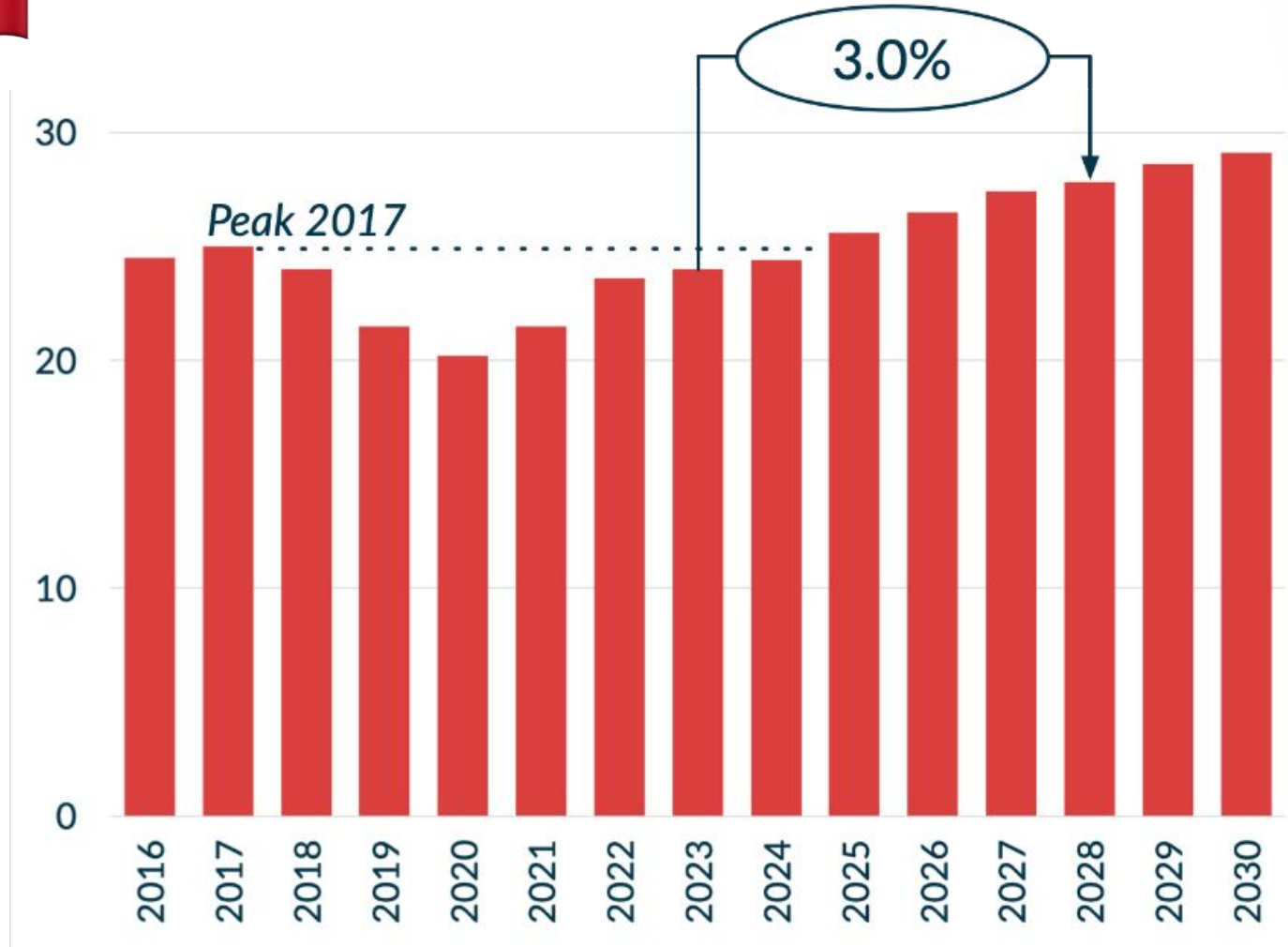
Global Vehicle Production (Million Units)



Source: S&P Global Mobility - Light Vehicle Alternative Propulsion Forecast (6/2023)



China Vehicle<sup>1</sup> Production (Million Units)



(<sup>1</sup>) Passenger Vehicle (excl. Commercial Vehicle)

Source: China Association of Automobile Manufacturers [CAAM] (2023)

# Major Automotive Trends

①

**Electrification**

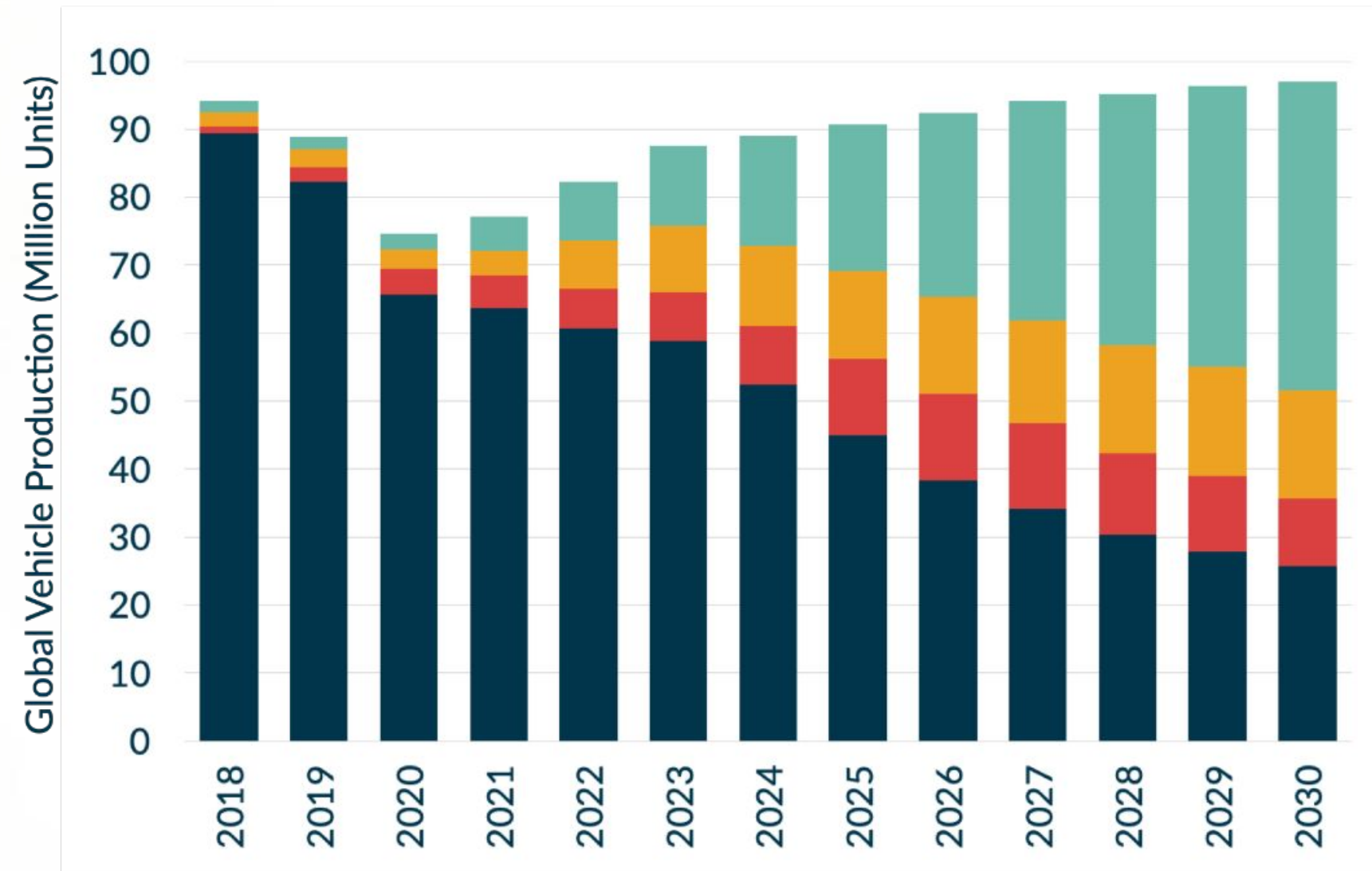
②

**Premiumization**

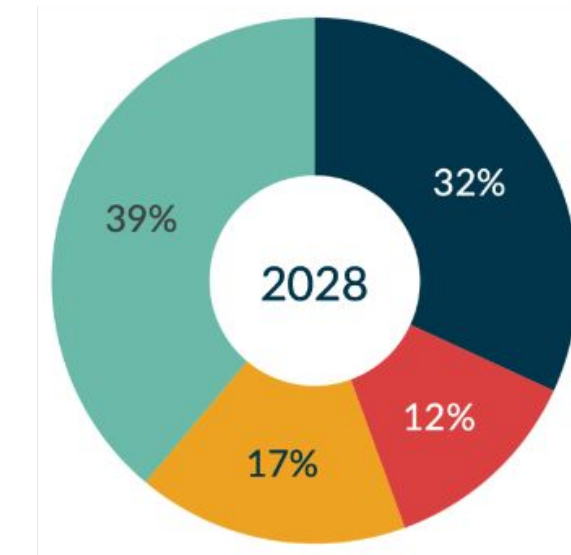
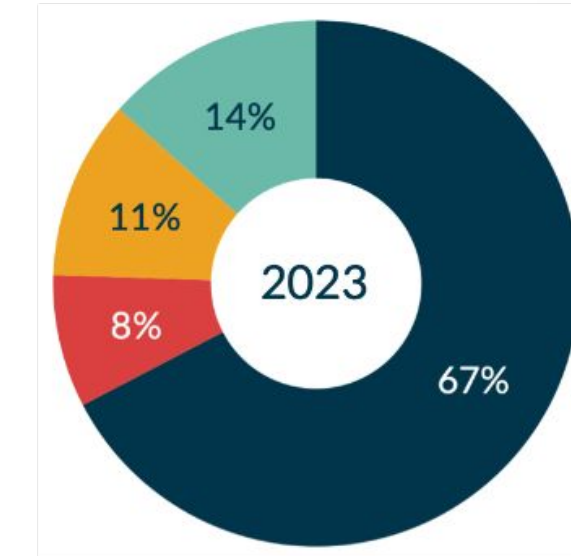
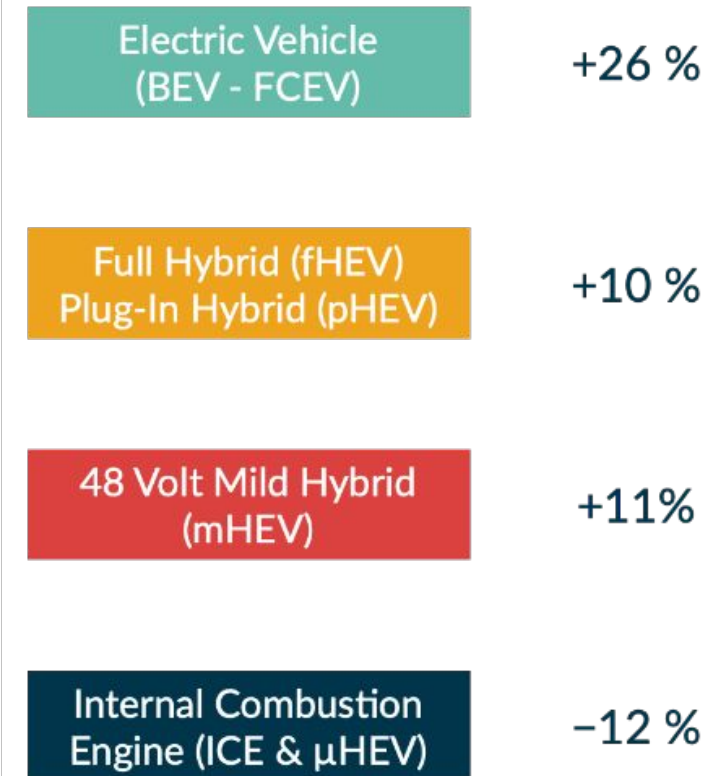
③

**ADAS**

# ① Electrification



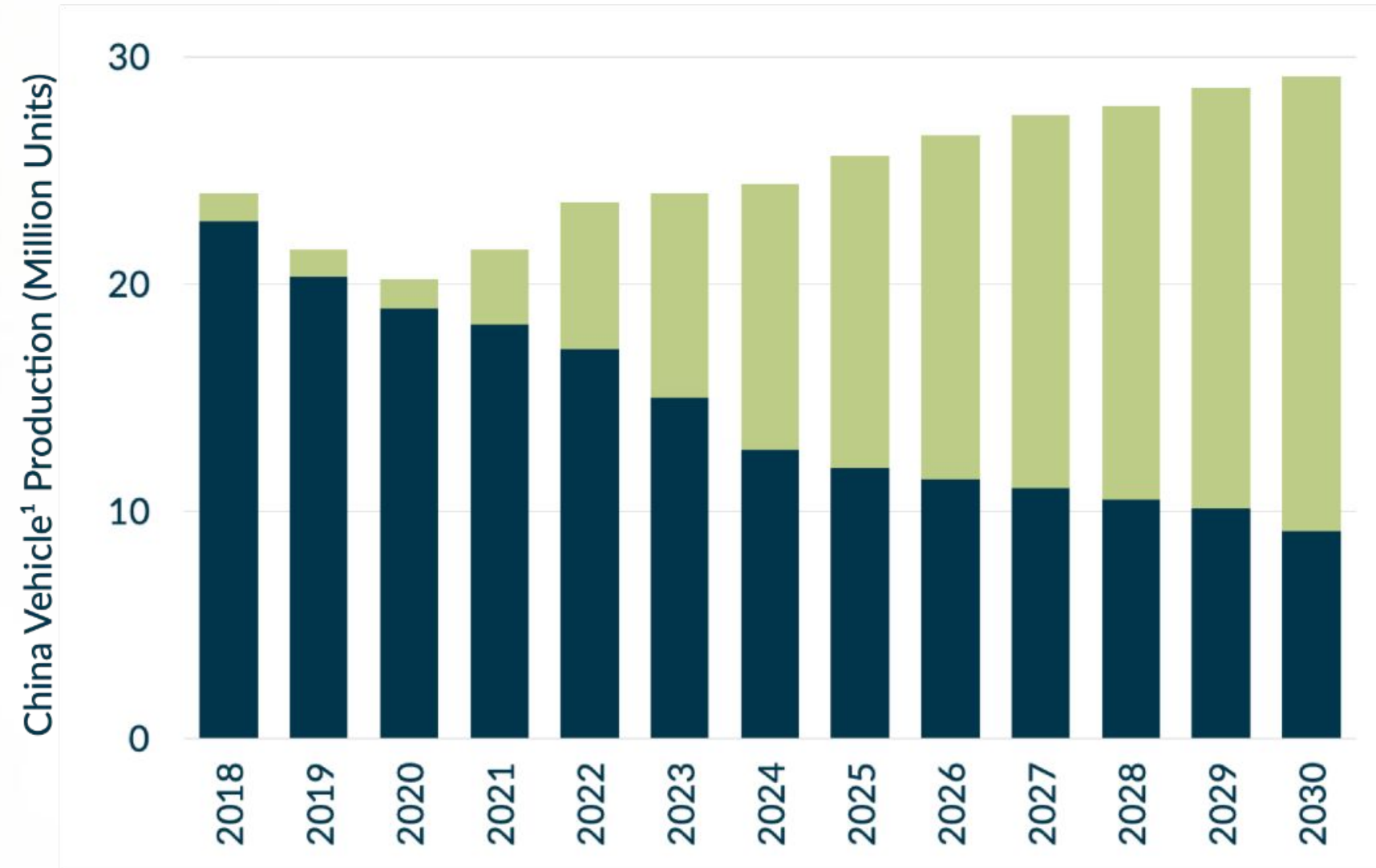
CAGR 2023-2028



Source: S&P Global Mobility - Light Vehicle Alternative Propulsion Forecast (6/2023)

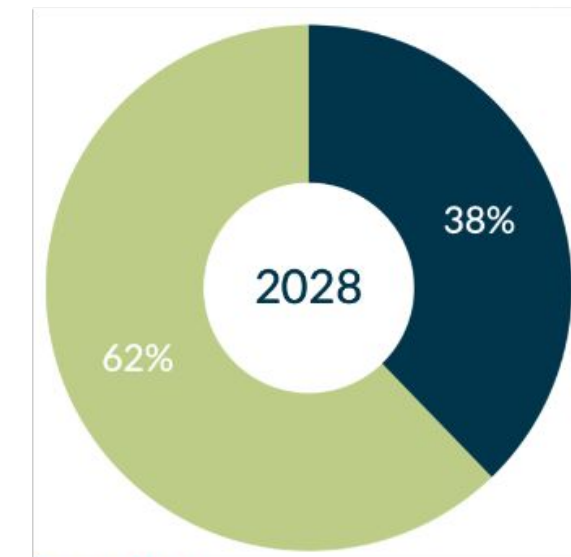
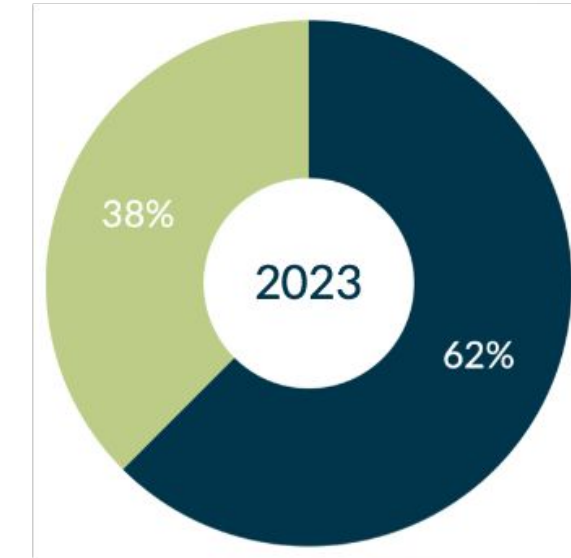


# ① Electrification



Source: China Association of Automobile Manufacturers [CAAM] (2023)

CAGR 2023-2028

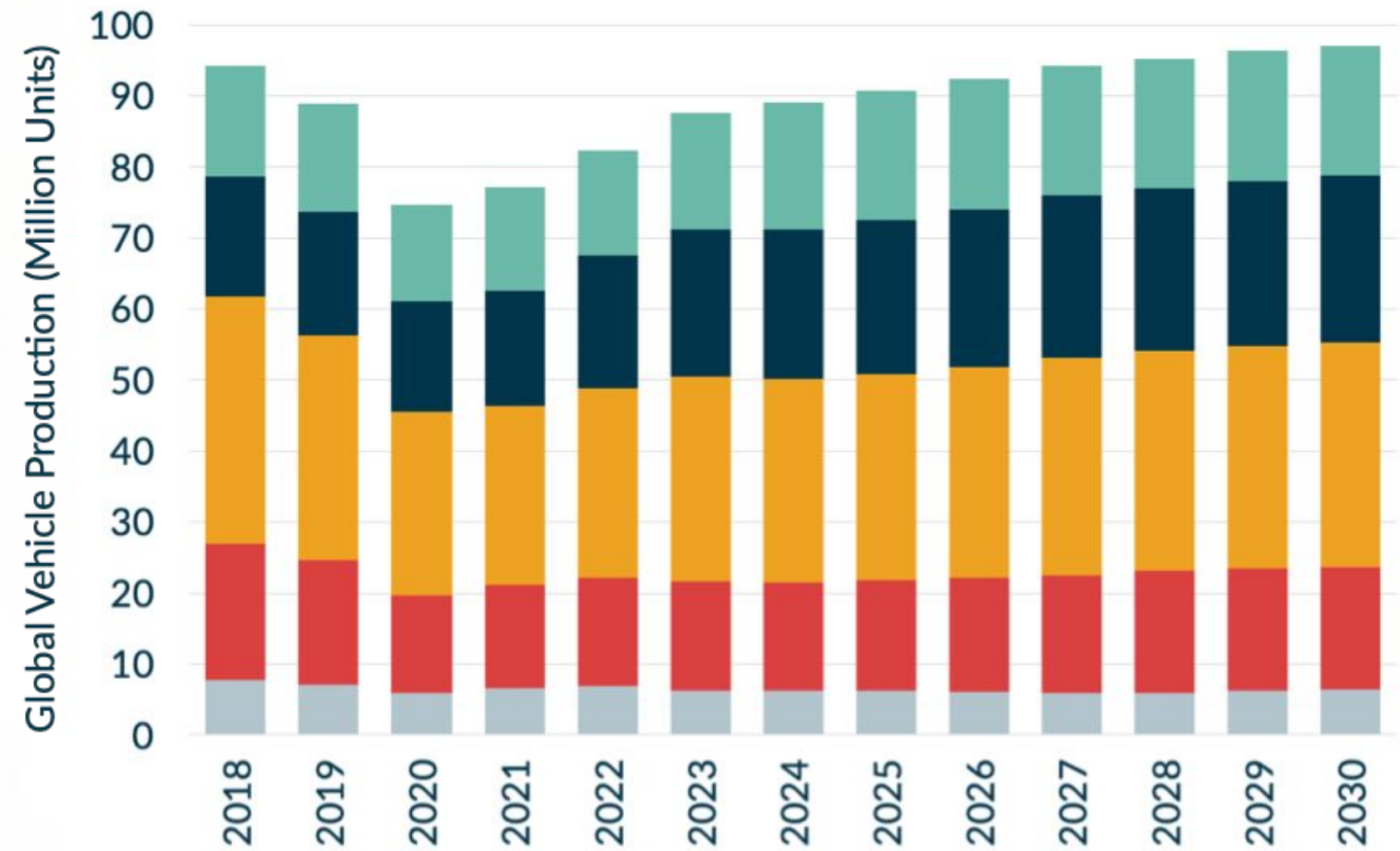


<sup>(1)</sup> Passenger Vehicle (excl. Commercial Vehicle)

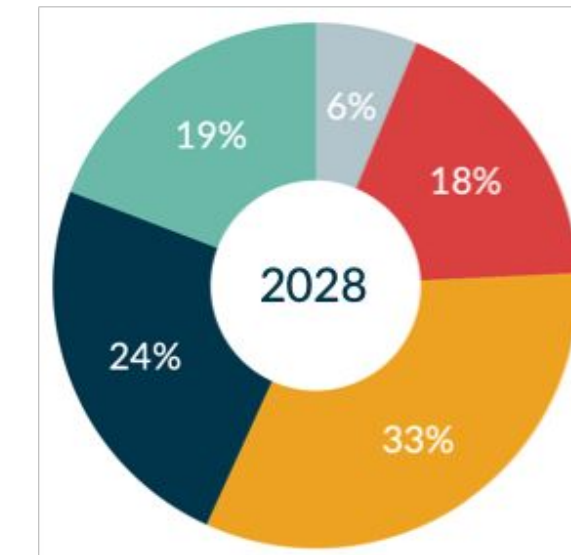
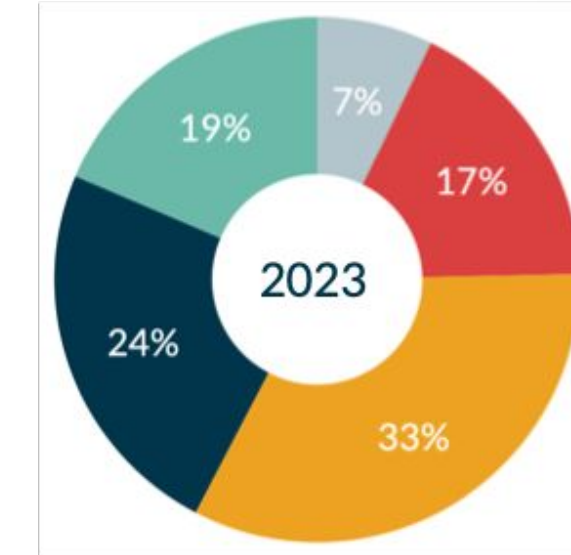
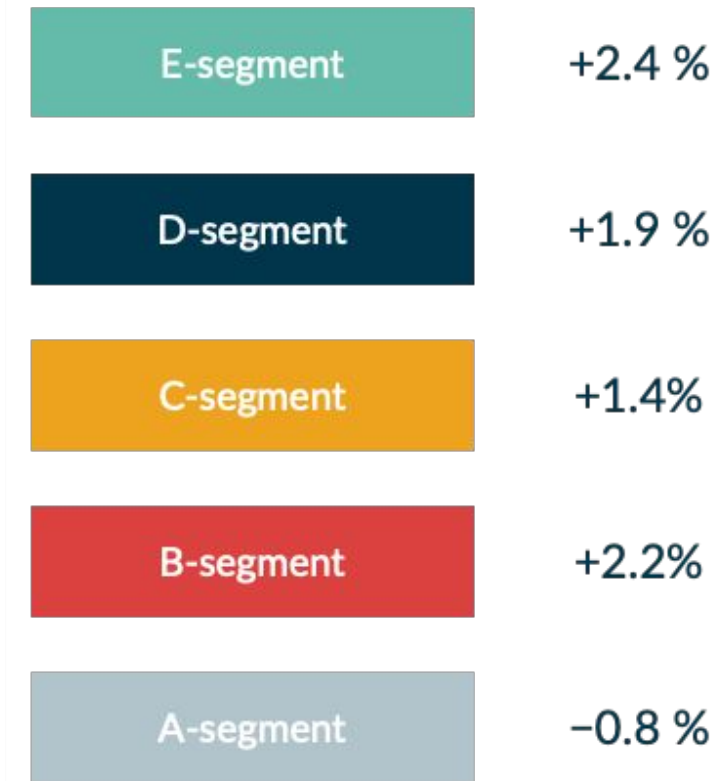
<sup>(2)</sup> NEV = New Energy Vehicles (incl. BEV, FCEV, pHEV, fHEV)

<sup>(3)</sup> ICE = Internal Combustion Engine

## ② Premiumization

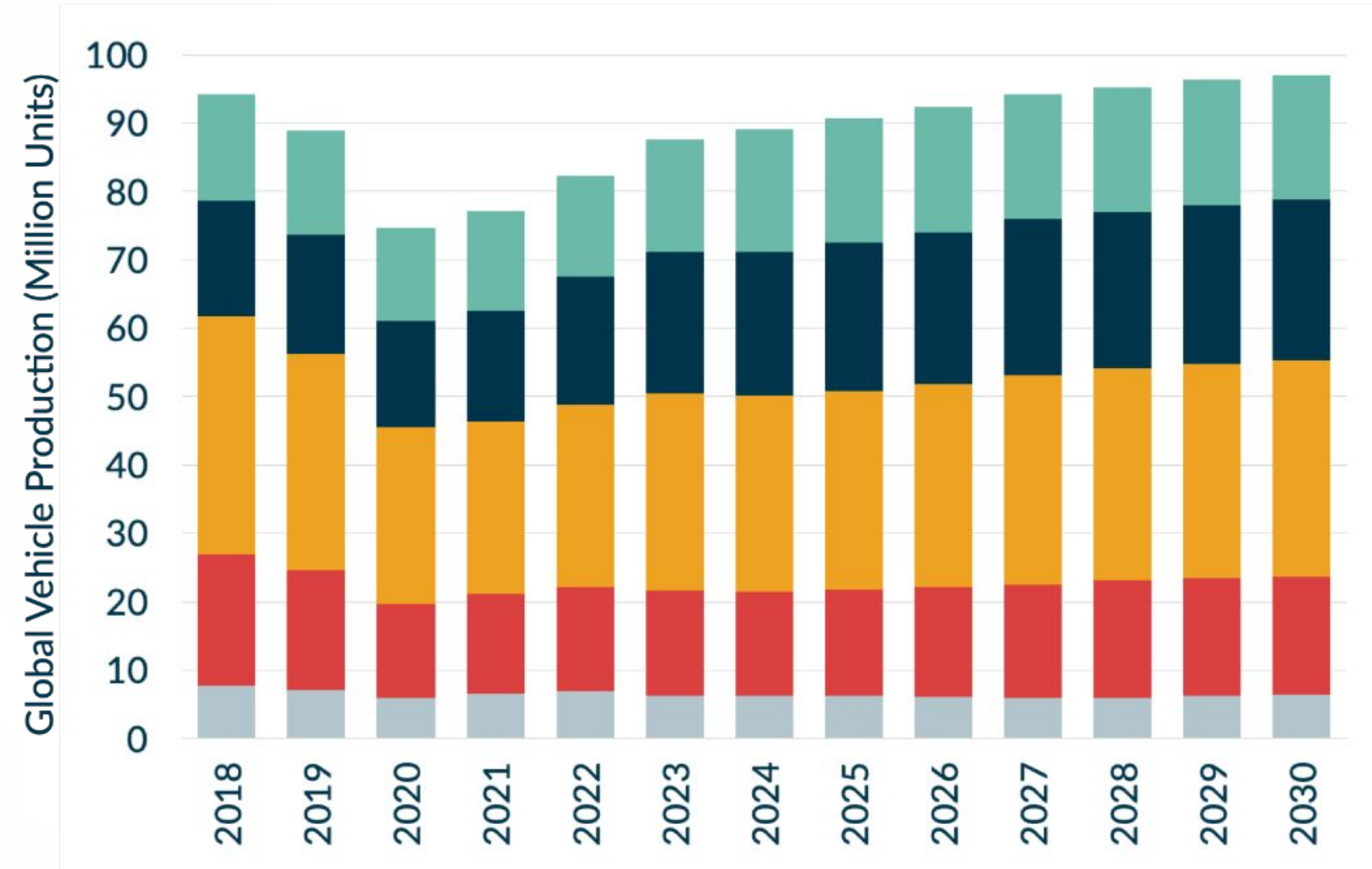


CAGR 2023-2028

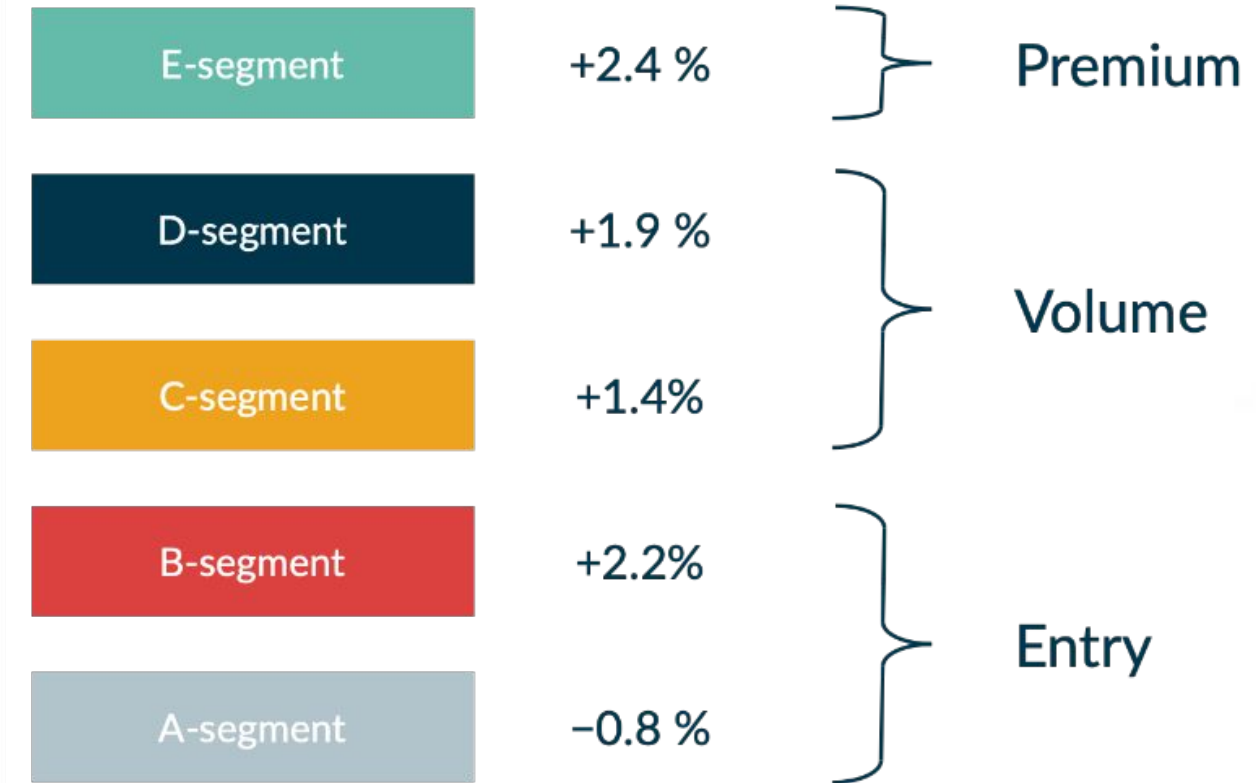


Source: S&P Global Mobility - Light Vehicle Production Forecast (10/2023)

## ② Premiumization

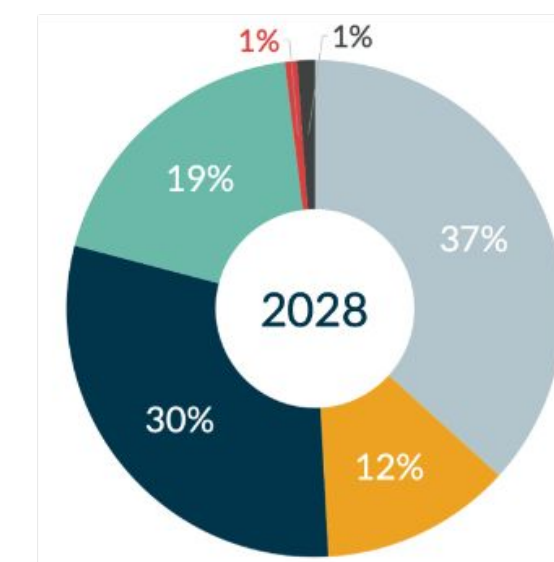
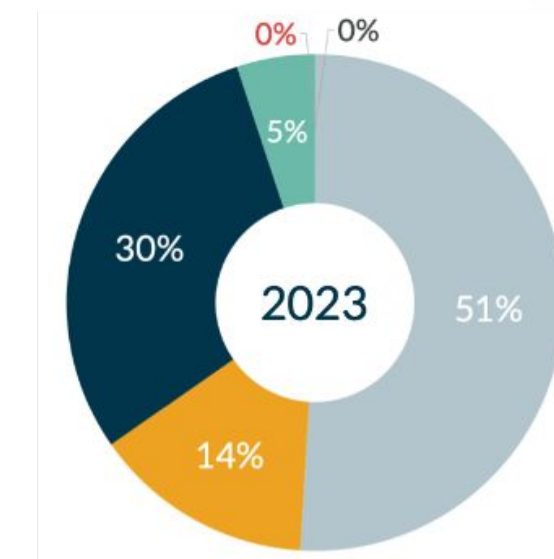
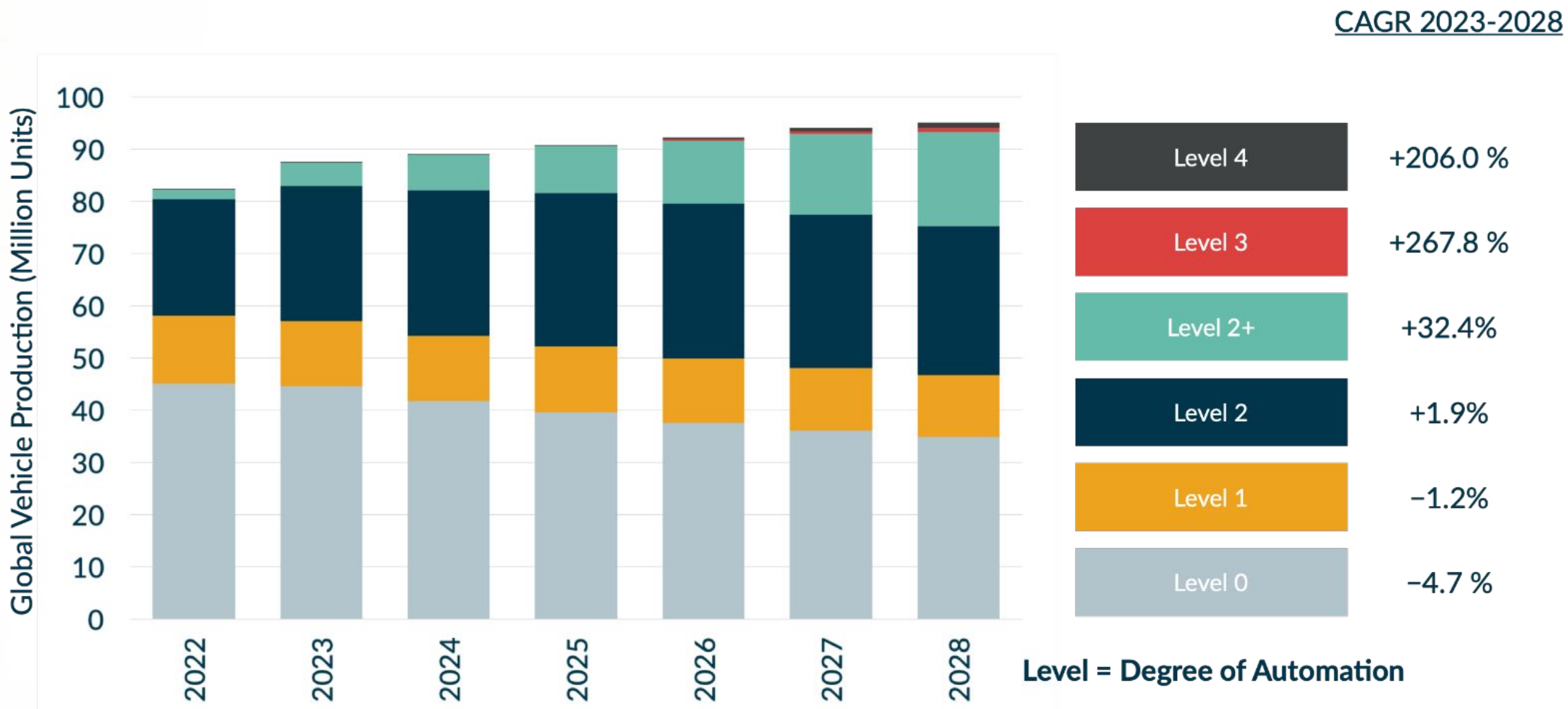


CAGR 2023-2028



Source: S&P Global Mobility - Light Vehicle Production Forecast (10/2023)

# ③ ADAS (Advanced Driver Assistance System)

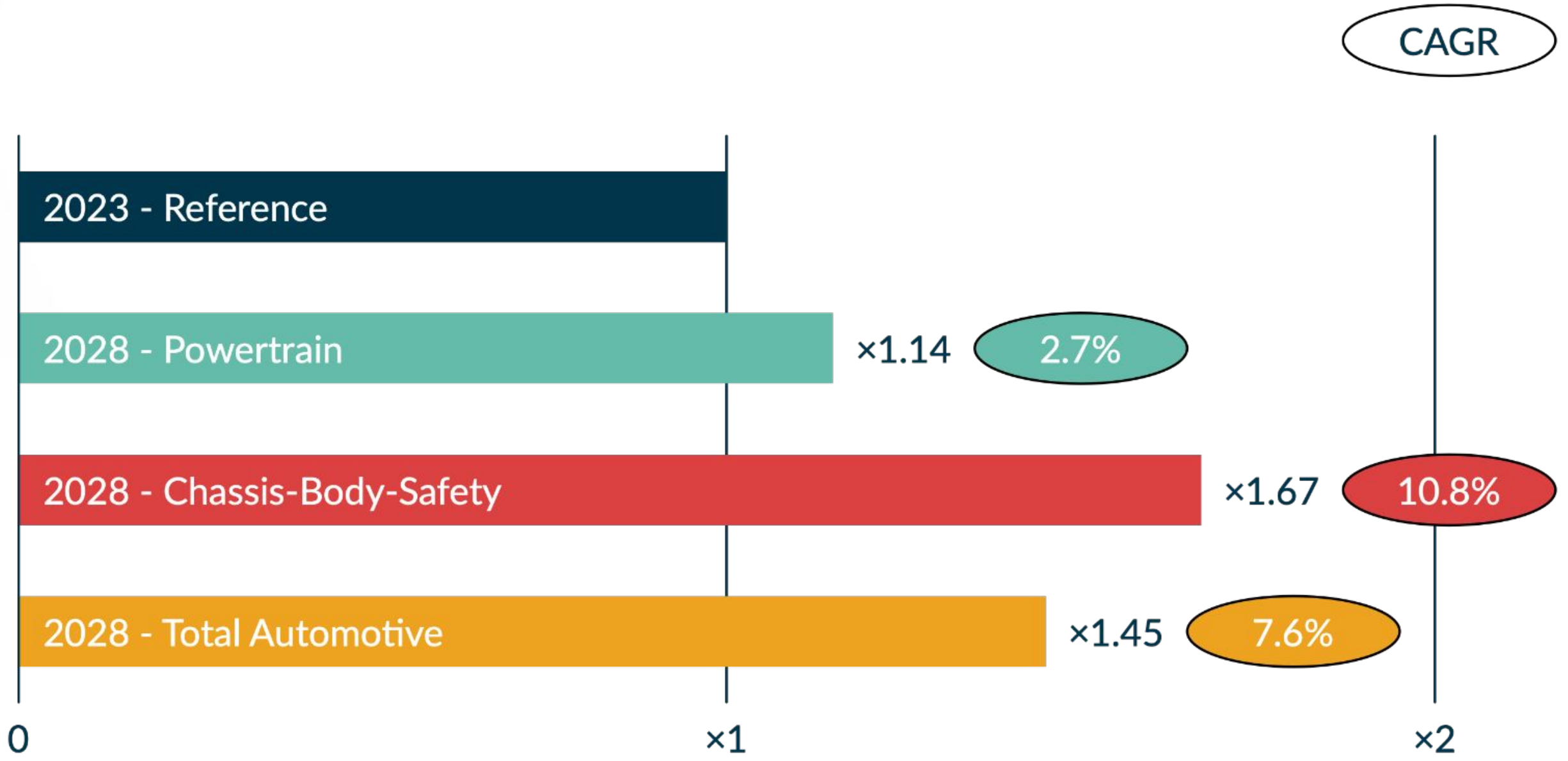


Source: S&P Global Mobility - Autonomy Level Forecast (11/2023)

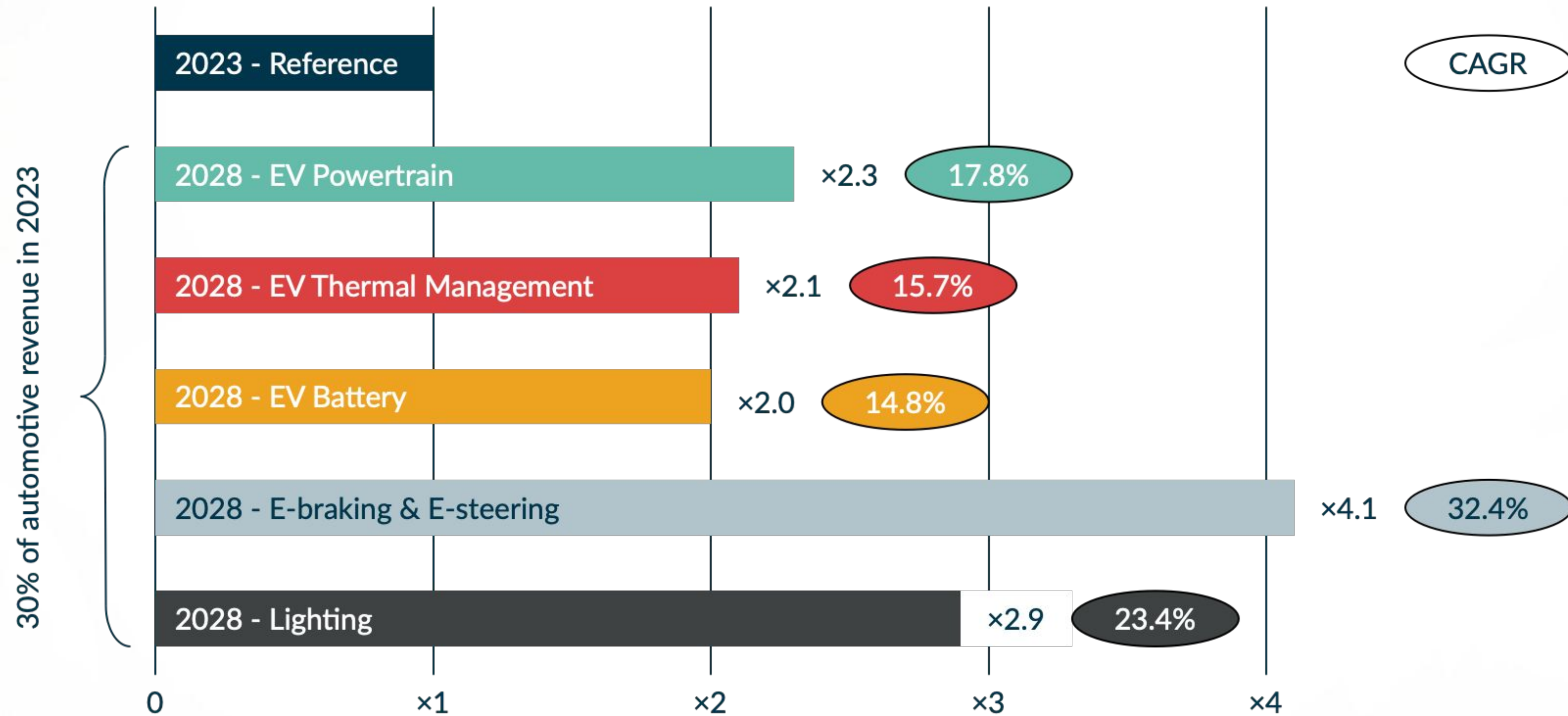
# Serviceable Addressable Market (Euro)

- Updated view based on a thorough bottom-up sockets model
- Assumptions:
  - More conservative than S&P Global (former IHS Markit)
  - Global vehicle production: CAGR = 0% (vs. 1.7% @ S&P Global)
  - Electric Vehicle: CAGR = 18% (vs. 26% @ S&P Global)
  - Powertrain: split vs. Electrification types
  - Body-Chassis-Safety: split vs. Entry, Volume and Premium segments
- Resilience Test vs. Electrification penetration: less than  $\pm 2\%$  variation

# Serviceable Addressable Market (Euro)



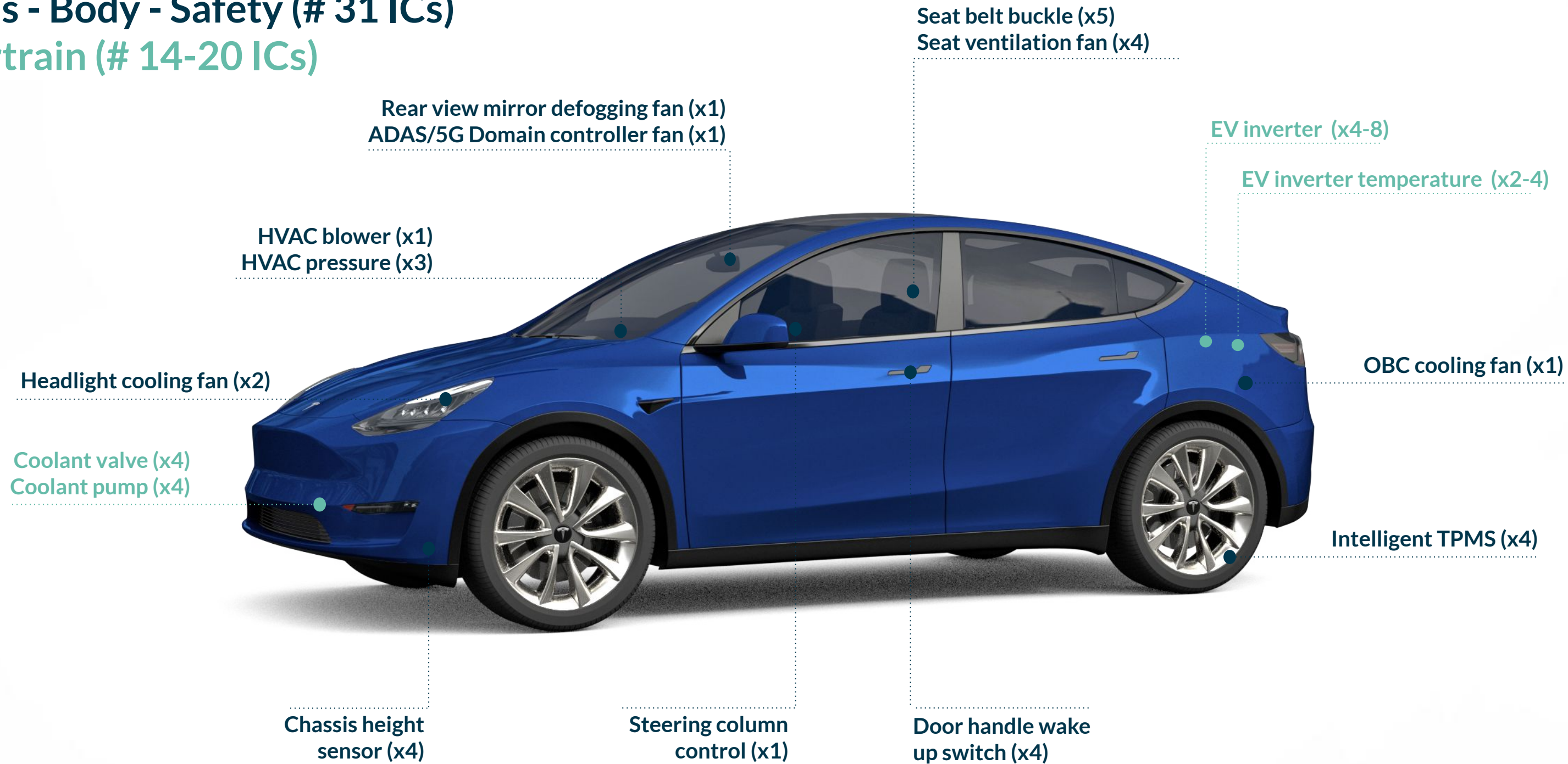
# Serviceable Addressable Market (Euro)



# Tesla Model Y / X, S, 3 and cybertruck

Chassis - Body - Safety (# 31 ICs)

Powertrain (# 14-20 ICs)

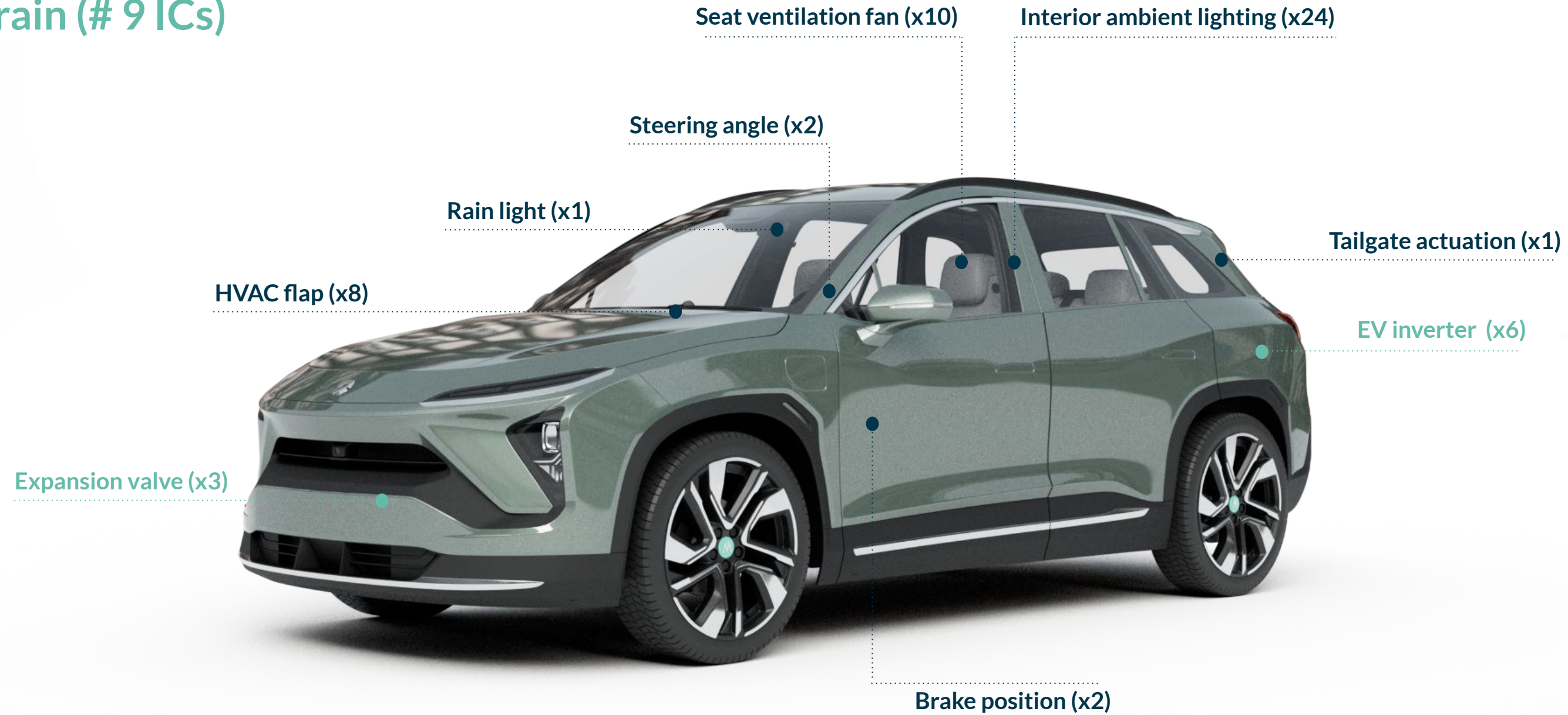




# NIO ES6 蔚来汽车

Chassis - Body - Safety (# 48 ICs)

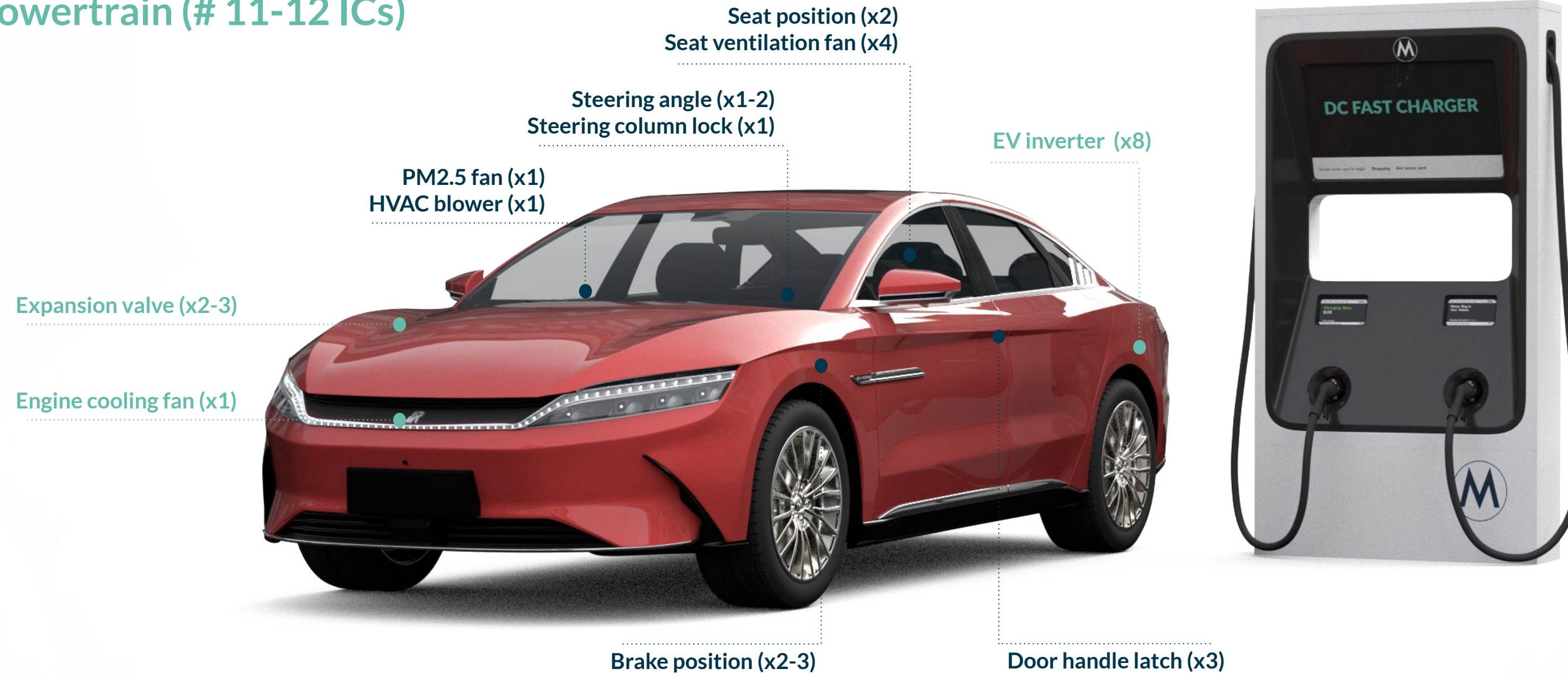
Powertrain (# 9 ICs)



# BYD Han / BYD Dynasty Series 王朝系列

Chassis - Body - Safety (15-17 ICs)

Powertrain (# 11-12 ICs)

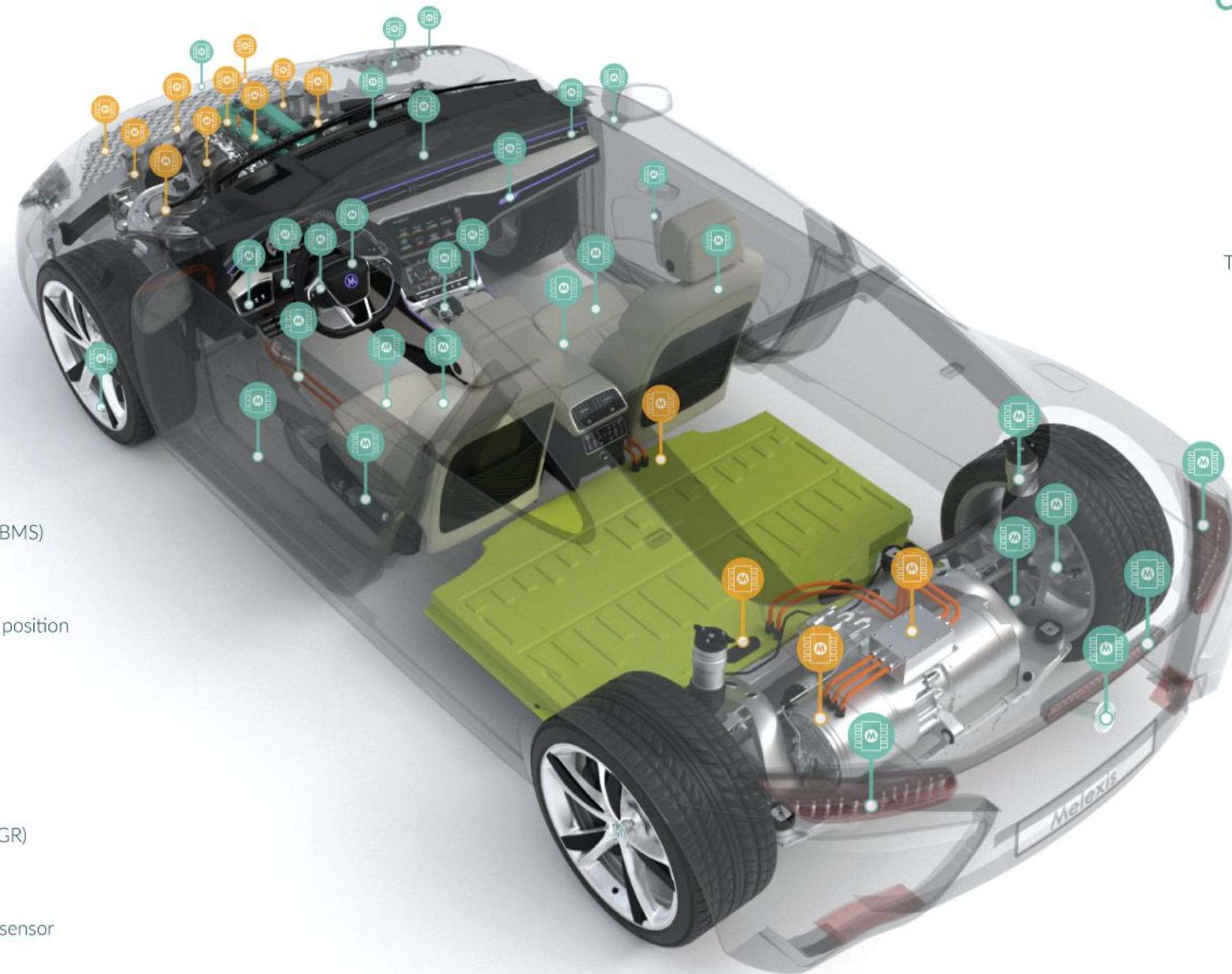


# Melexis' car



## Powertrain

- Traction inverter
- Battery monitoring system (BMS)
- DCDC converter
- Thermal management
- Onboard charger (OBC)
- Accelerator / brake / clutch position
- Brake fluid level detection
- Transmission
- Clutch switch
- Gear shift
- Engine cooling fan
- Water pump
- Water valves
- Grille shutter
- Exhaust gas recirculation (EGR)
- Valve exhaust gas pressure
- Throttle
- Crankshaft position
- Manifold absolute pressure sensor
- Fuel pump
- Fuel level

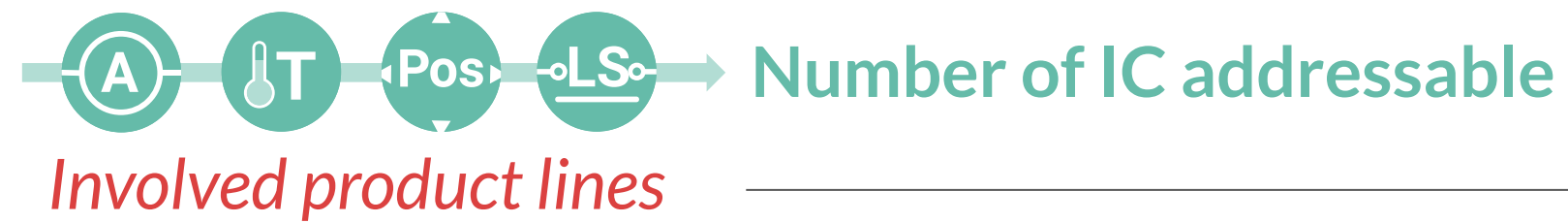


## Chassis - body - safety

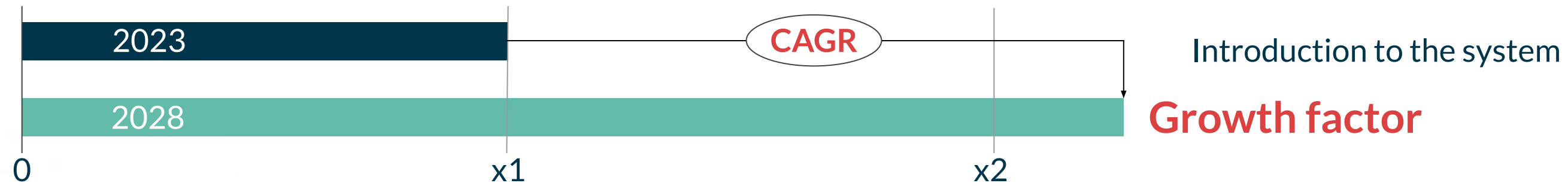


- In-cabin monitoring & gesture control
- Driver monitoring (DMS)
- ADAS / Dashboard GPU cooling
- Washing liquid level detection
- Wiper
- Rain-light sensor
- Hood lock switch
- LED headlight ventilation fan
- LED and laser headlight control
- Tire pressure monitoring system (TPMS)
- Smart tire sensor
- Ride height
- Electrical power steering (EPS)
- Brake light switch
- Turn signals / stalk-end position
- Electric parking brake
- Flap position detection
- Climate control / HVAC
- Seat heating and ventilation
- Seat belt buckle
- Seat position adjuster
- Seat lumbar pressure
- Seat occupant detection
- Keyless entry
- Door lock switch
- Door handle wake up switch
- Side mirror adjuster
- Window lift
- Sunroof
- In-vehicle networking
- Interior ambient lighting
- Interior animated lighting
- Puddle lights
- Stop lights
- Rear lights
- Tailgate/trunk motor opener
- Trunk lock switch

# SYSTEM



## Serviceable Addressable Market (Euro)



## Purpose

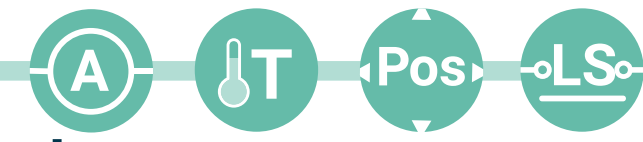


- Key application (product available)
- Key application (innovation ongoing)

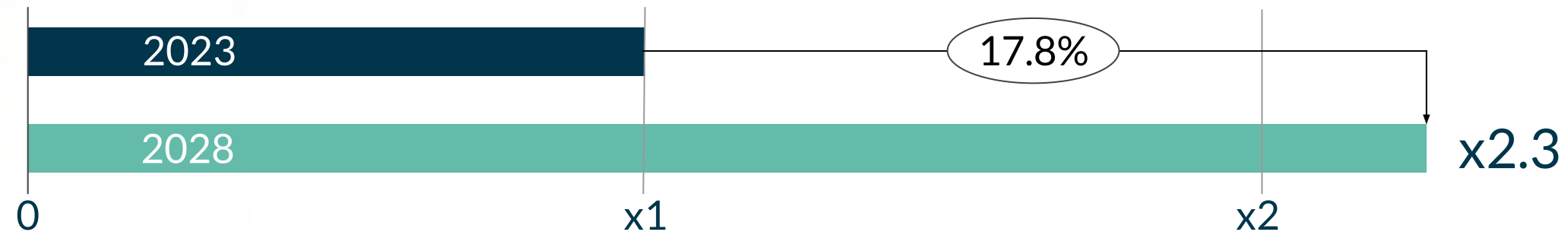
- Pos Position sensor ICs
- A Current sensor ICs
- MD Motor driver ICs
- LS Latch & switch ICs
- T Temperature sensor ICs
- P Pressure sensor ICs
- Sint Sensor interface ICs
- RGB Smart LED driver ICs

# EV POWERTRAIN

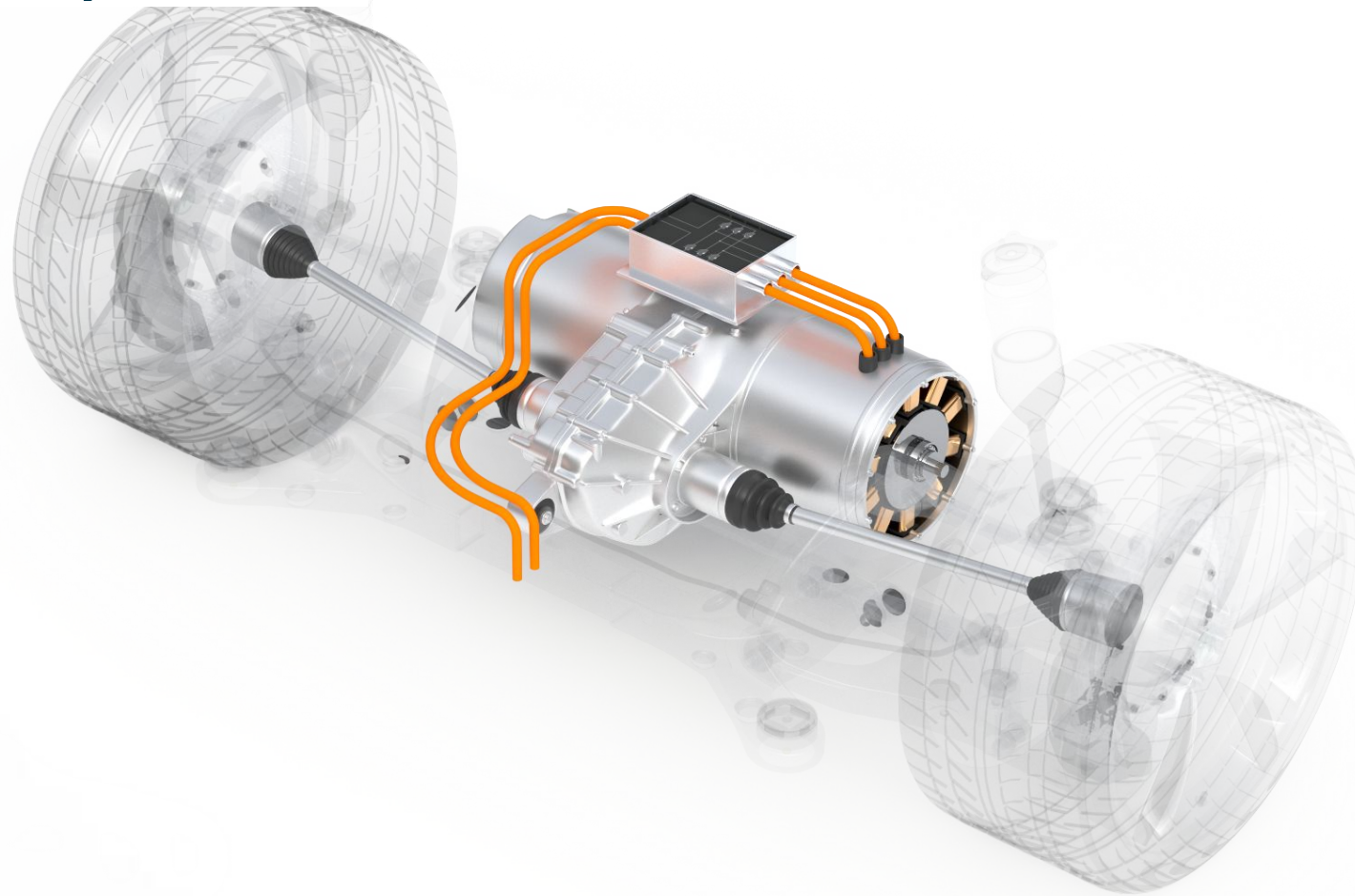
Serviceable Addressable Market



5 to 22 ICs



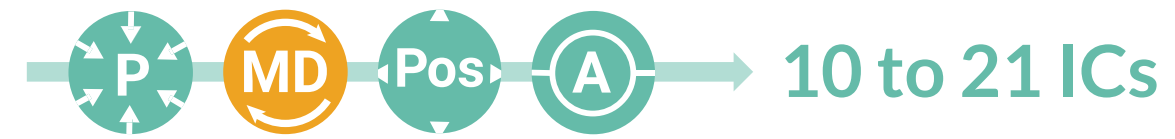
## Efficiency matters



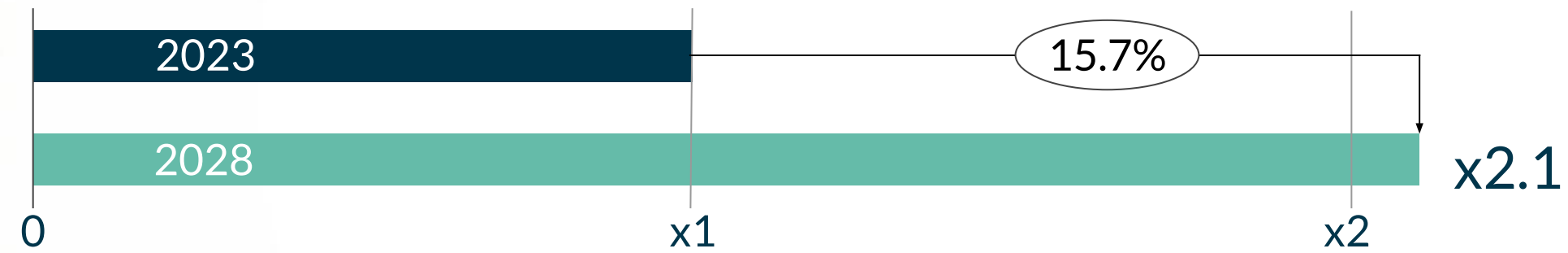
In electric vehicles, the inverter converts DC power from the battery to AC power for the motor drive, which in turn transforms it into propulsion power. The efficiency of this system has a direct impact on the all-electric range, road performance and comfort.

- AC phase current monitoring
- Rotor position sensing
- Power module temperature monitoring
- Safety cover open/close detection
- Power module signal filtering (snubber)

# EV THERMAL MANAGEMENT



## Serviceable Addressable Market



## Optimizing energy consumption

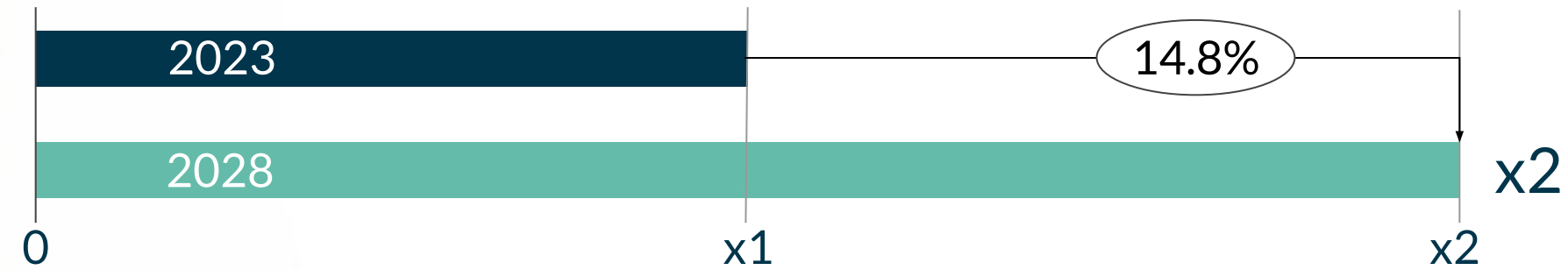


In order to optimize energy while increasing the All Electric Range, a perfect thermal management system is key. Ideal performance of the battery requires a temperature between 20-40°C. Without the free heat of a classical ICE, the energy for heating & cooling the cabin needs to be optimized.

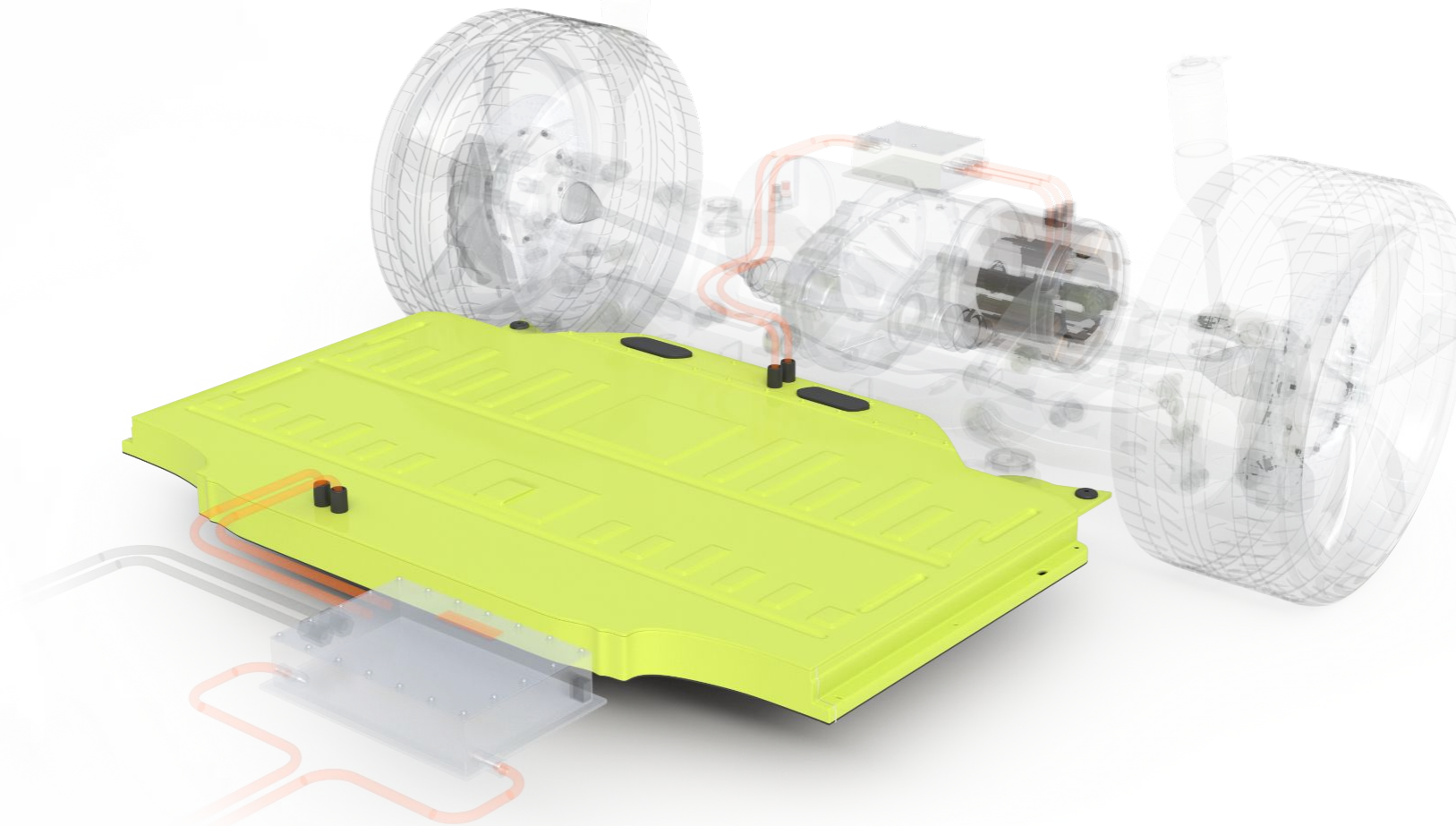
- Pressure monitoring
- Temperature monitoring
- Current consumption monitoring
- E-compressor current sensing
- Fast charge current monitoring
- Valve & pump positioning & controlling
- Refrigerant pressure sensing (Triphibian)

# EV BATTERY 4 to 18 ICs

## Serviceable Addressable Market



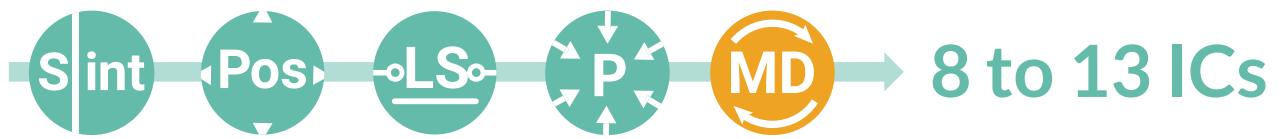
## Extending battery range, life and safety



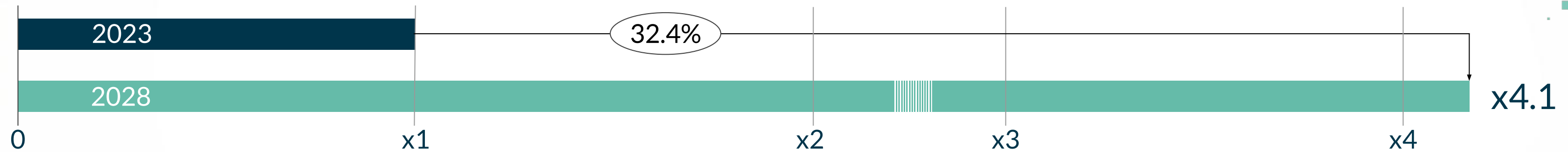
The high voltage battery stores electrical energy which powers the electric motor. It determines the range the vehicle can travel on a single charge. It's optimization is a game changer. Battery management systems ensure the safety and the longevity of the battery.

- Current monitoring
- Pressure monitoring
- Temperature monitoring
- Impedance sensing
- Thermal runaway detection

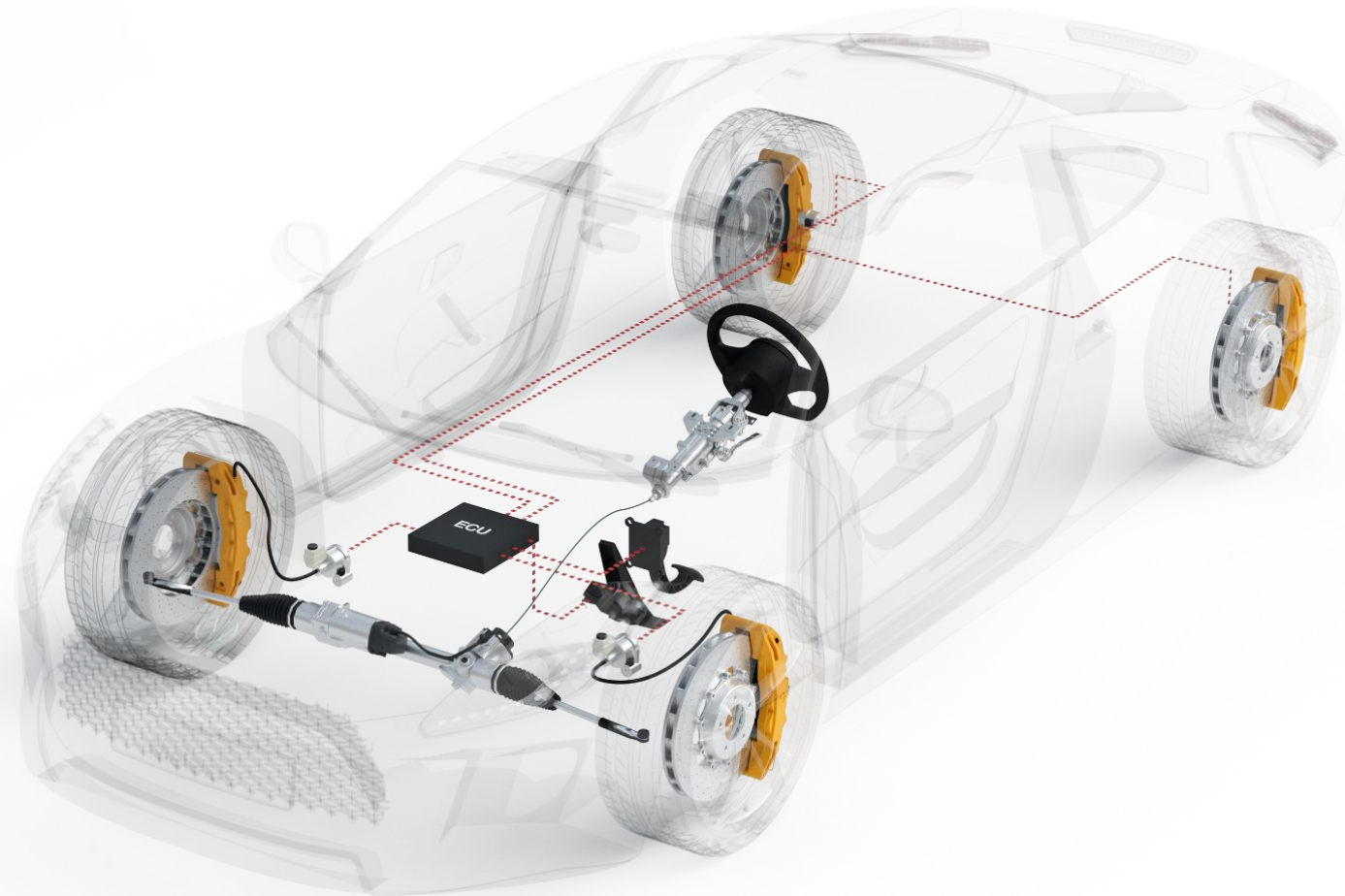
# E-BRAKING & E-STEERING



## Serviceable Addressable Market



## Higher safety level for (autonomous) cars



In the world of automotive innovation, sensor ICs act as the silent heroes, enabling precise control, responsiveness, reliability and safety. These technical marvels drive us on the journey from pumps & vacuum (mechanical) to the X-by-wire revolution (electronic).

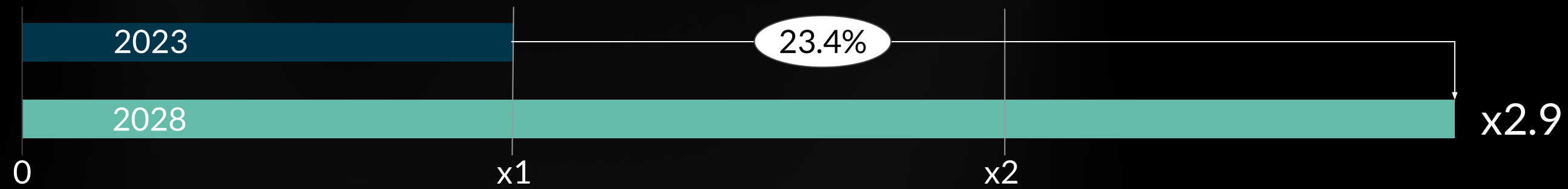
- E-steering wheel angle position & torque sensing
- E-steering rack position sensing
- E-brake pedal position sensing
- E-brake caliper position & force sensing
- Rotor positioning for electric motors
- Park lock motor positioning & controlling
- Fluid level sensing



# INTERIOR & EXTERIOR LIGHTING

## Serviceable Addressable Market

RGB → 10 to 150 ICs



### Functionality, personalization and premiumization



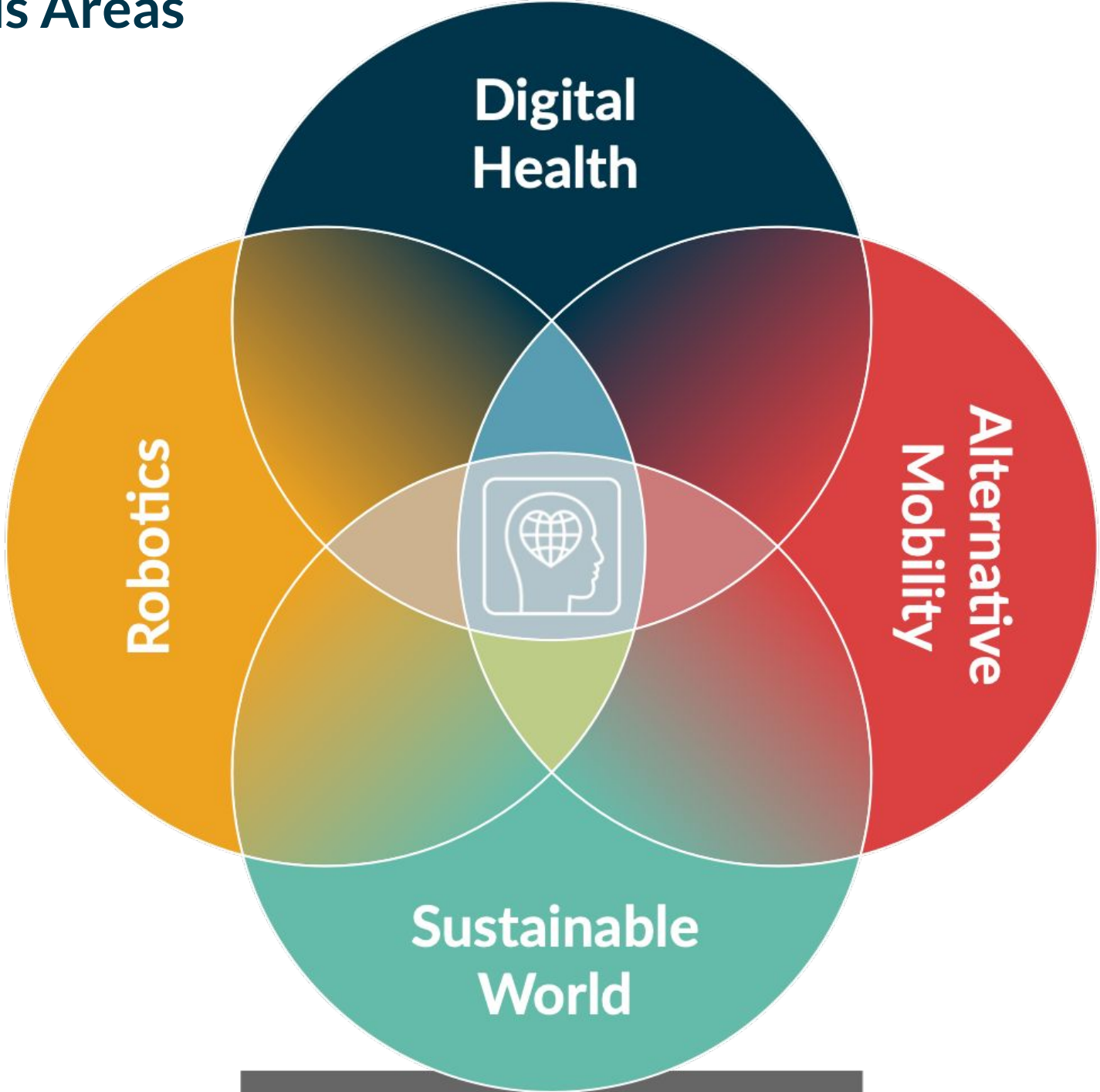
Lighting is upgrading the interior and exterior of our cars. It brings comfort, safety and functionality. Lighting is the new differentiator for OEMs as well as for brand recognition.

- Interior ambient lighting
- Animated lighting
- Logo & grille illumination
- Daytime running light
- Rear lighting



# BEYOND AUTOMOTIVE

## Focus Areas



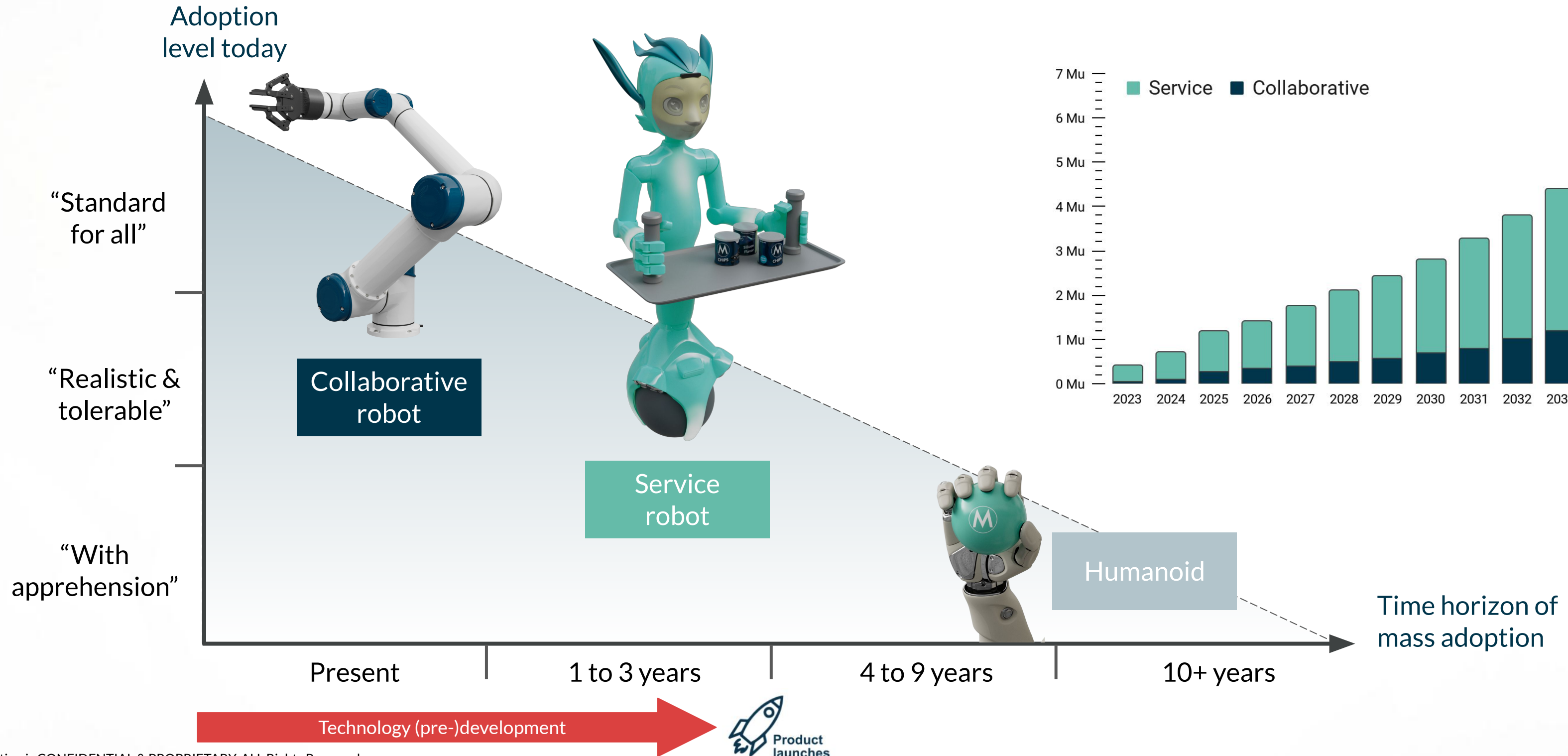
# BEYOND AUTOMOTIVE

Growth ambition

$$\text{CAGR}_{2023-2030} \geq 15\%$$



# We believe in the mass adoption of robots

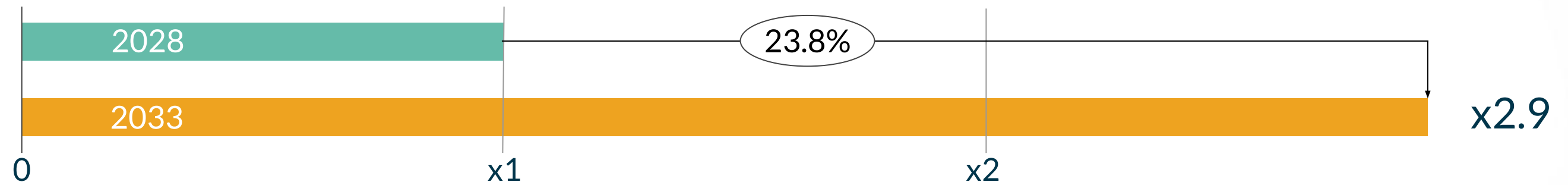


# FUTURE OF ROBOTICS

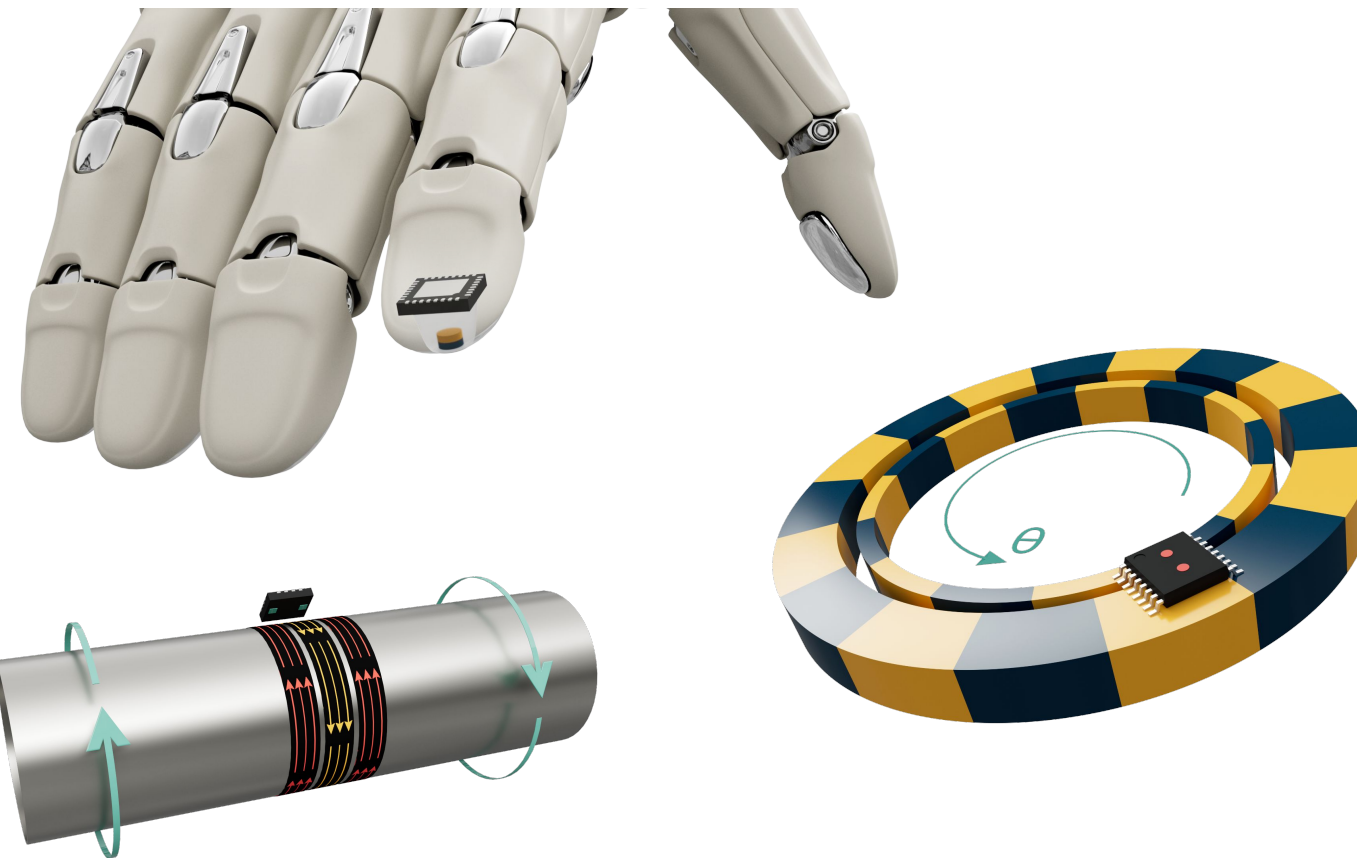


20 to 30 ICs per robot

Serviceable Addressable Market



## Let robots feel the real world

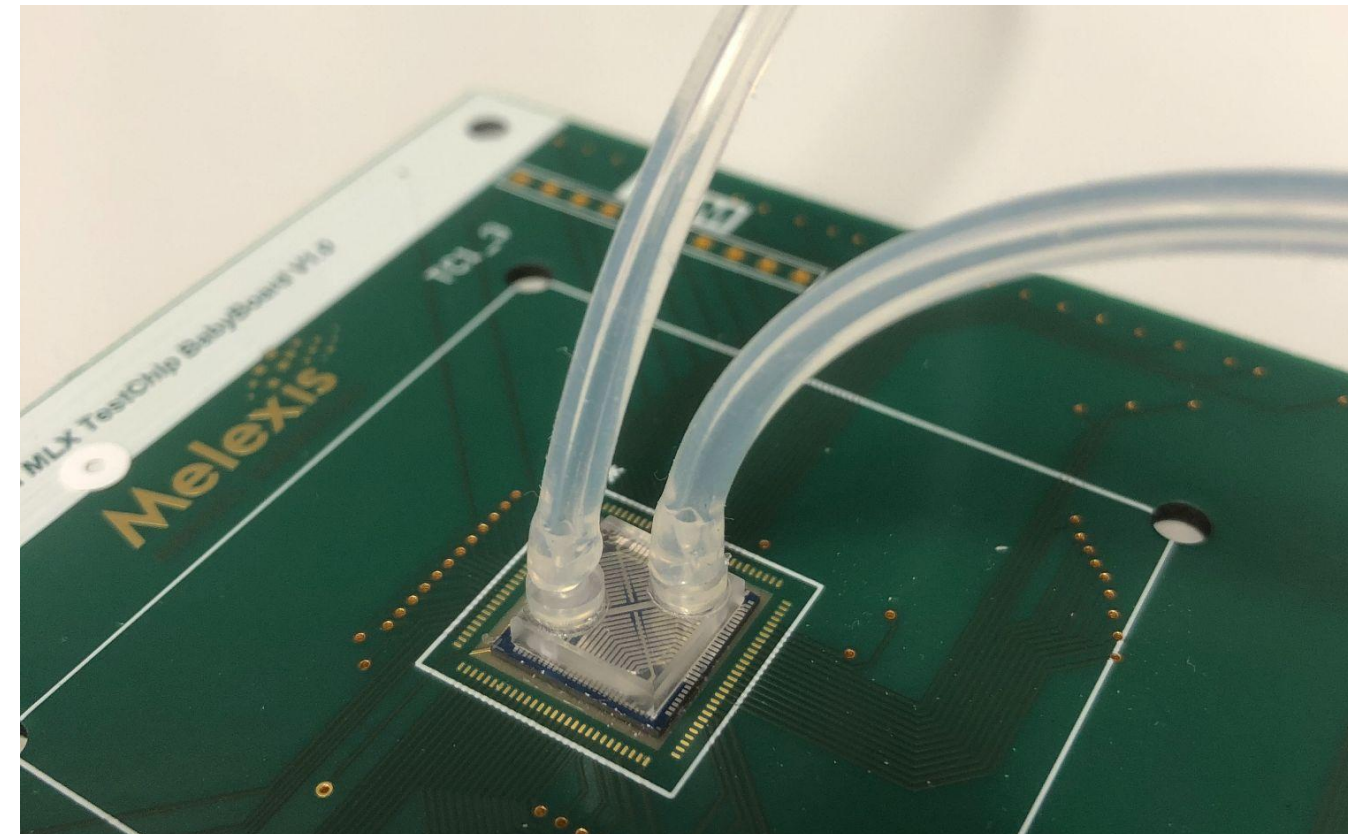


Our innovation team is developing single Integrated Circuit solutions which combine our expertise in magnetic sensing, signal conditioning, on-board diagnosis for safety, automotive quality solutions and advanced packages. Melexis ICs shape the future. Let your robot sense it.

- Force sensing (Tactaxis™)  
Give robots a sense of touch
- Position sensing (Arcminaxis™)  
Popularize precise motion
- Torque sensing (Elaxis™)  
Compact and contactless integrated torque sensing

# DIGITAL HEALTH

## Biosensing



- In-house innovation
- Technology scouting
- Open Innovation with technology partners and universities

- Aging of population
- Scarcity of medical personnel
- Affordability of healthcare
- Increase of health & well-being awareness

- In-vitro diagnostics devices
- Point-of-care devices
- Home diagnostics or medical devices
- Wearables & skin patches



**Melexis**  
INNOVATION WITH HEART

# Vision

The best imaginable future. This is what Melexis shapes.  
A future that is safe, clean, comfortable and healthy.  
Because we care. We care about our planet, about our  
customers and about our colleagues.



# INNOVATION WITH HEART



## INNOVATE

We are on the customer's side  
We always have a plan

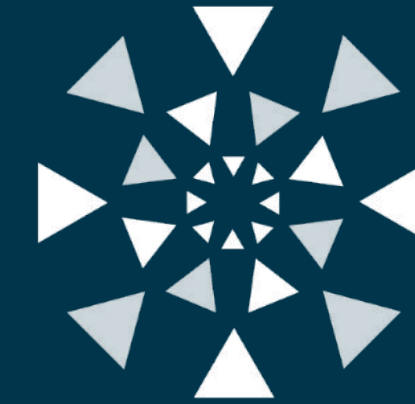
Automotive Sales:  $\geq 10\%$  CAGR  
Beyond Automotive Sales:  $\geq 15\%$  CAGR



## PEOPLE

We care  
We enjoy the journey towards success

90% of employees recommend  
Melexis as a good place to work



## OPTIMIZE

We understand the value of money  
We always have a plan

Gross Profit margin  $\geq 45\%$   
EBIT margin  $\geq 25\%$

How

Values

Goals



## SUSTAINABILITY FOOTPRINT

# INNOVATION WITH HEART

