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# China Euro Vehicle Technology AB

Innovation in vehicle development



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# 1. This is CEVT



# Started 2013 as a joint R&D center between Geely and Volvo Cars

Now an innovation center for Geely Group that keeps over 1700 people in several countries busy.

A Swedish registered company, owned by Geely, located at Lindholmen Science Park in Gothenburg.

## Locations:

**Gothenburg:** Over 400 full-time and 750 consultants and recruiting.

**Hangzhou:** Over 400 full-time and recruiting.



- CEVT
- Geely Design



# CEVT Board of Directors



Håkan  
Samuelsson  
CEO Volvo Cars



Frank Li  
Vice President &  
CFO Geely Group



Conghui An (Chairman)  
CEO Geely Group



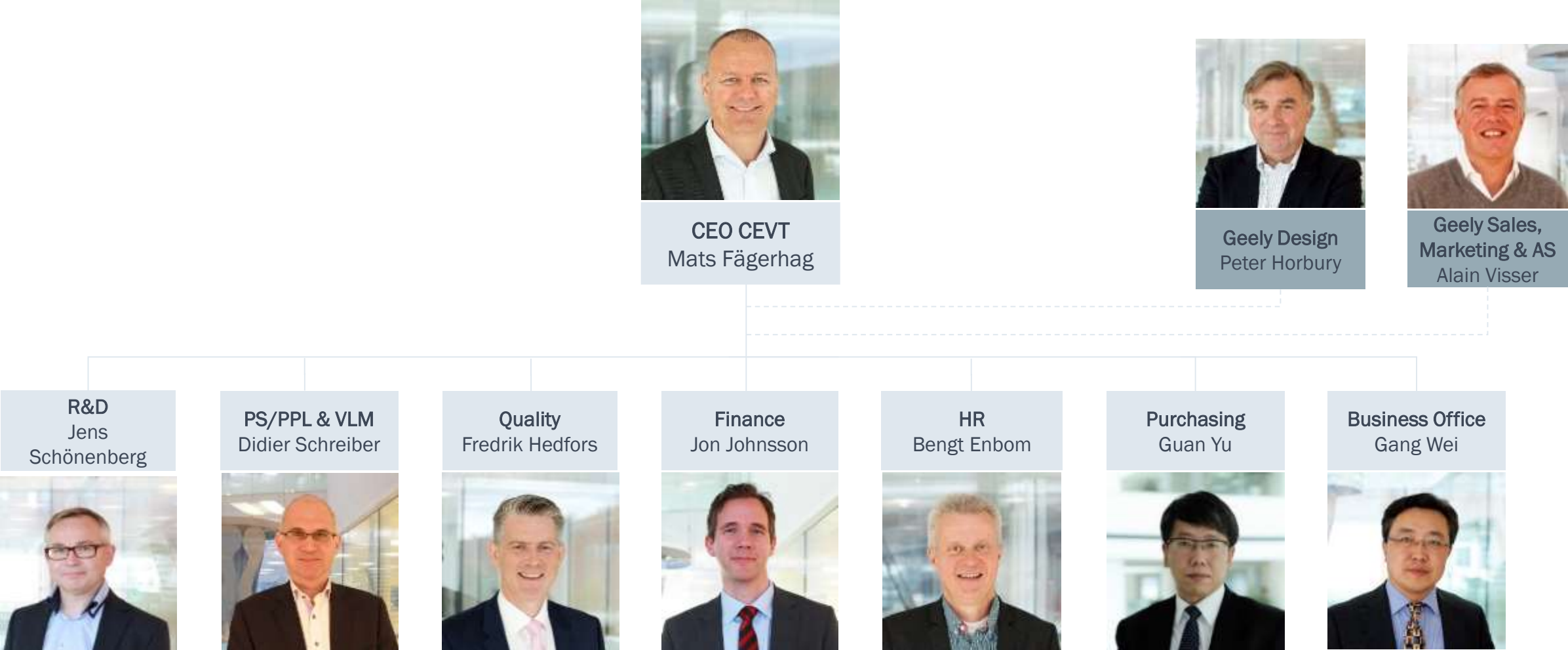
Carl-Peter Forster  
Advisor to  
Chairman Li



Mats Fägerhag  
CEO CEVT

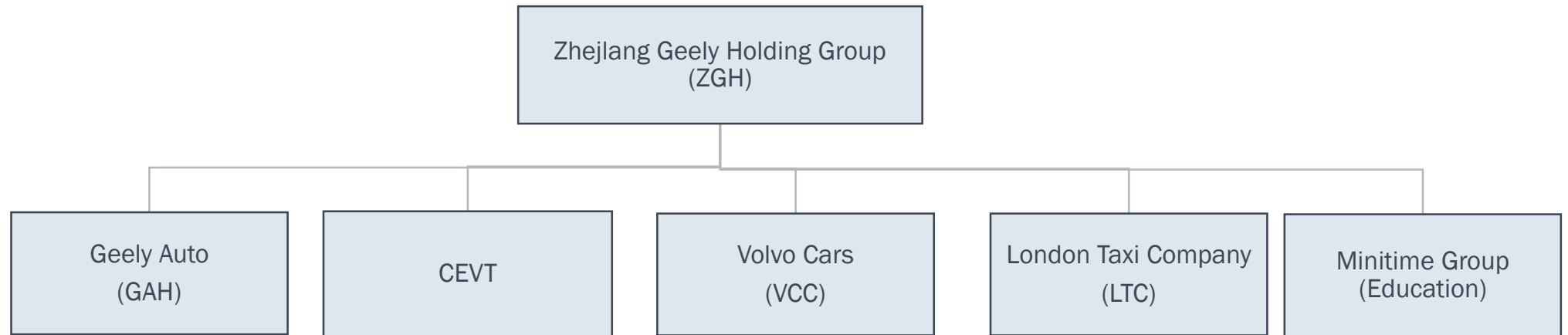
Mr. An has served as the President of Zhejiang Geely Holding Group Company Limited (Geely Group) since December 29<sup>th</sup> 2011, and is now in charge of the Group's overall operations. Mr. An joined Geely Group in 1996. Since then, he has held various key positions in the Group, including Chief Engineering Officer and General Manager.

# CEVT first line organization structure



# The Geely Group

**GEELY**



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## 2. This is what we do





# R&D Portfolio

## > Architecture Development

Creating new modular architectures and key components for C-segments cars.

## > Top Hat Development

Creating complete, customer focused vehicles based on the new architectures.

## > Shared Component Development

Creating technical solutions applicable to both brands and customer profiles.

## > Complete Vehicle Design

Creating beautifully designed vehicles that expands the customer segment.

## > Advanced Engineering and New Technologies



# Deliverables to



- Architecture and components
- Shared Component Development



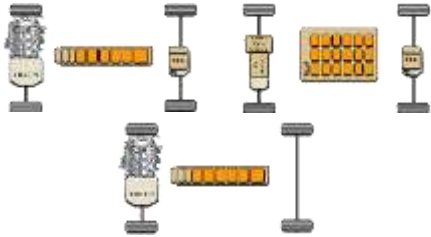
- Architecture and components
- Top Hat Development
- Shared Component Development
- Complete Vehicle Design
- Advanced Engineering and Technologies

# Compact Modular Architecture (CMA)

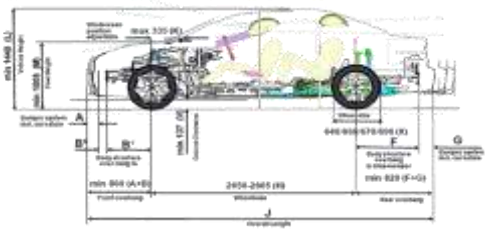


# Vehicle architecture definition

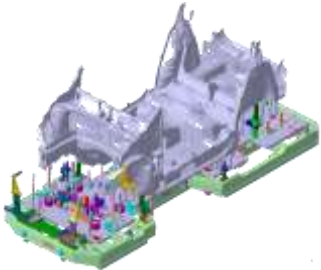
A vehicle architecture is the integration of all five of the following elements for a family of vehicles to meet customer requirements and maximize profits.



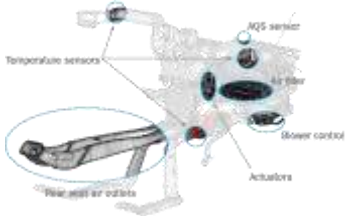
The Set of Common Components (BOM)



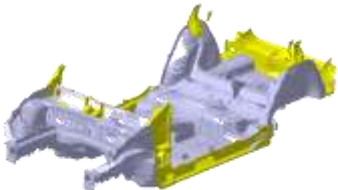
The Range of Dimensional Flexibility



The Common Manufacturing System (BOP)



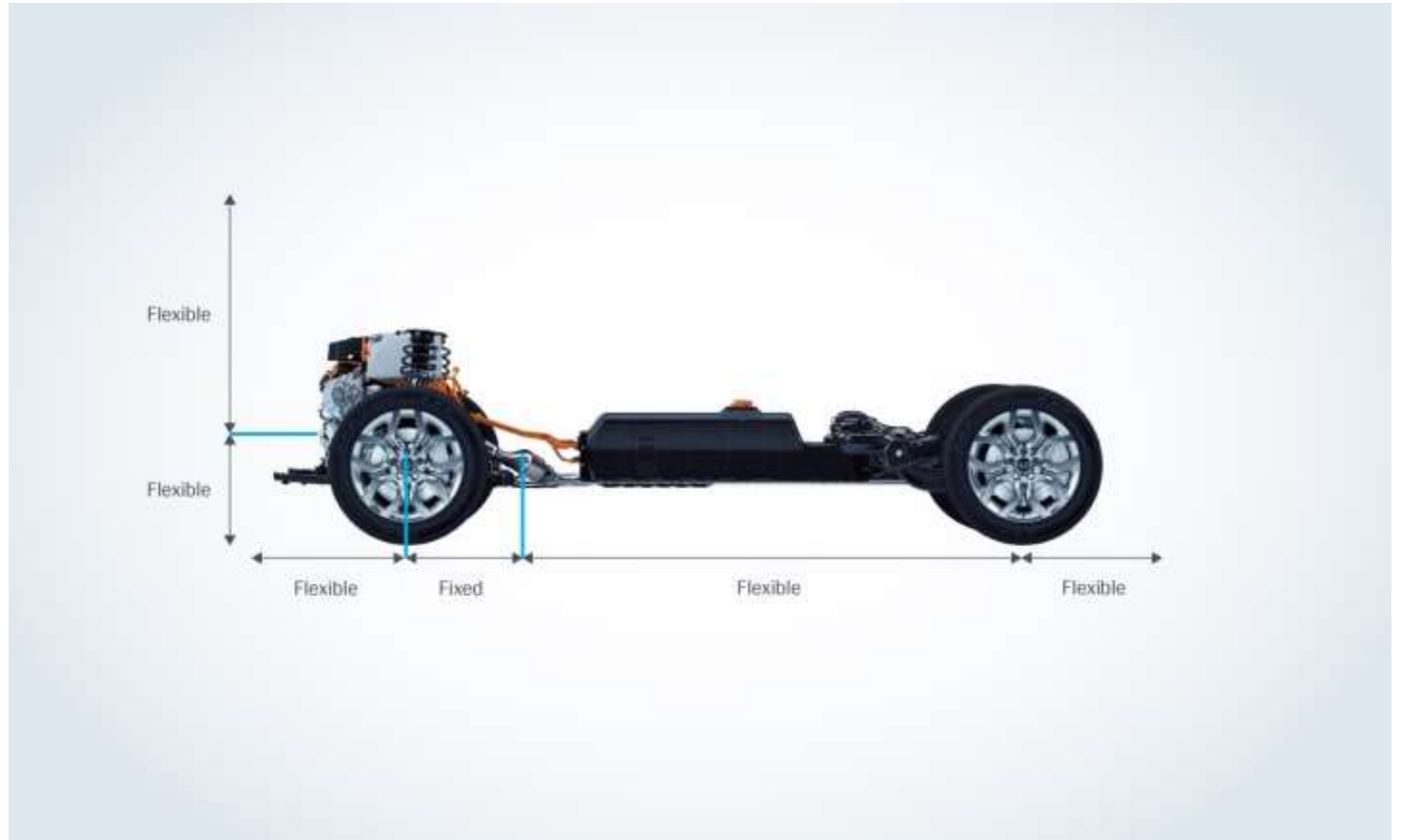
Functional / Performance limits



A Set of Common Interfaces

# Compact Modular Architecture (CMA)

Scalable in length and height



# Compact Modular Architecture (CMA)

Supports FWD or AWD



# Compact Modular Architecture (CMA)

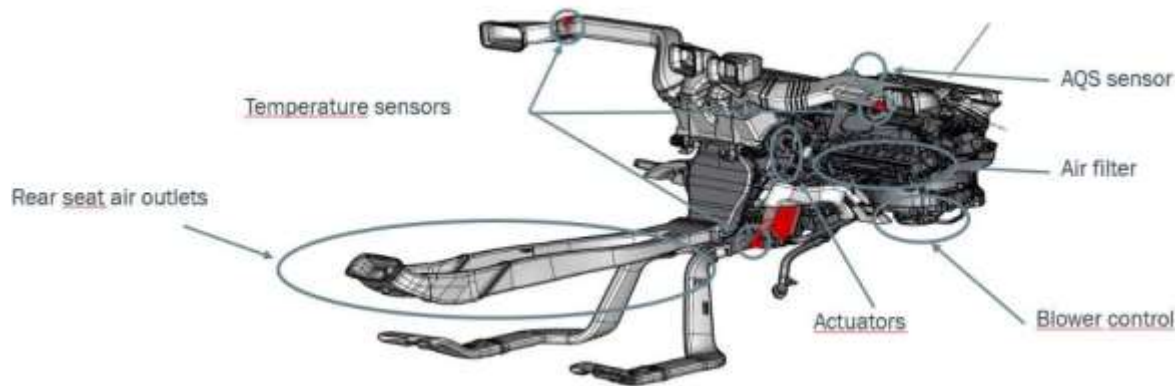
## Propulsion systems:

- > A family of 3 combustion engines
- > Manual or DC Automatic transmission
- > Integrated EL-motor in the DC Transmission for PHEV
- > BEV



# Compact Modular Architecture (CMA)

Examples of some of the possible steps on the ladder:

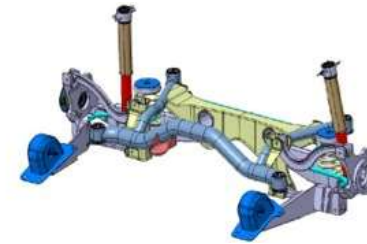


| Example of features                | Lowest specification<br>Manual Climate Control 1 zone | Example of Intermediate spec<br>Electronic Climate Control 1 zone | Highest specification<br>Electronic Climate Control 2 zone w AQS |
|------------------------------------|---|---|--|
| Blower controller type             | Resistor  | Pulse Width Modulation/LIN  | Pulse Width Modulation/LIN                                       |
| No of actuators                    | 3   | 4   | 5  |
| Air filter type                    | Pollen competitive                                    | Pollen competitive +  | Combi (carbon + pollen)  |
| No of internal temperature sensors | 1   | 4   | 6  |
| Rear seat air outlets              | -   | -   | Yes  |
| Air Quality Sensor                 | -   | -   | 1  |

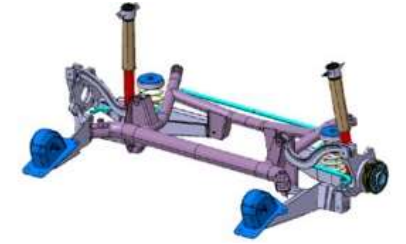


# Architecture variants

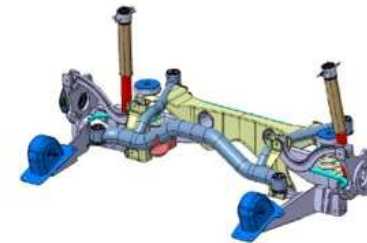
Several variants are driven by vehicle geometry. Not shown in the pictures are two other dimensions of variants due to vehicle weight and customer choice of suspension.



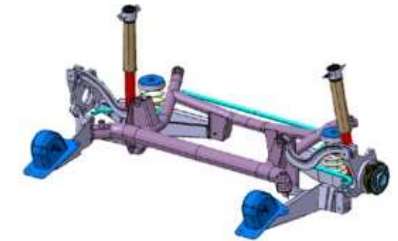
AWD, high vehicle



FWD, high vehicle



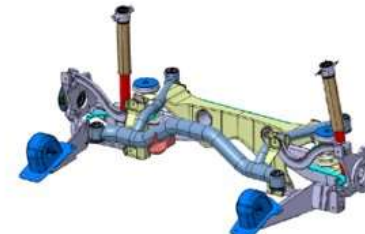
AWD, low vehicle



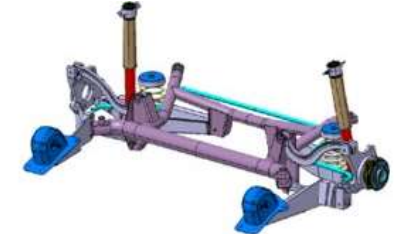
FWD, low vehicle



FWD, entry vehicle



AWD, wide vehicle



FWD, wide vehicle

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# 3. CMA and electrification



# PHEV technology

## Compact yet powerful:

- > Electric range >50 km
- > Pure electric drive in city traffic
- > Fuel efficient in highway
- > Combined power >250 hp



# Safety is a top priority for CMA

The sensitive Li-Ion battery is well protected in the center of the vehicle.



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# 4. The future of CEVT





*Where we are heading as a company*

> Continuous growth

> Increased scope

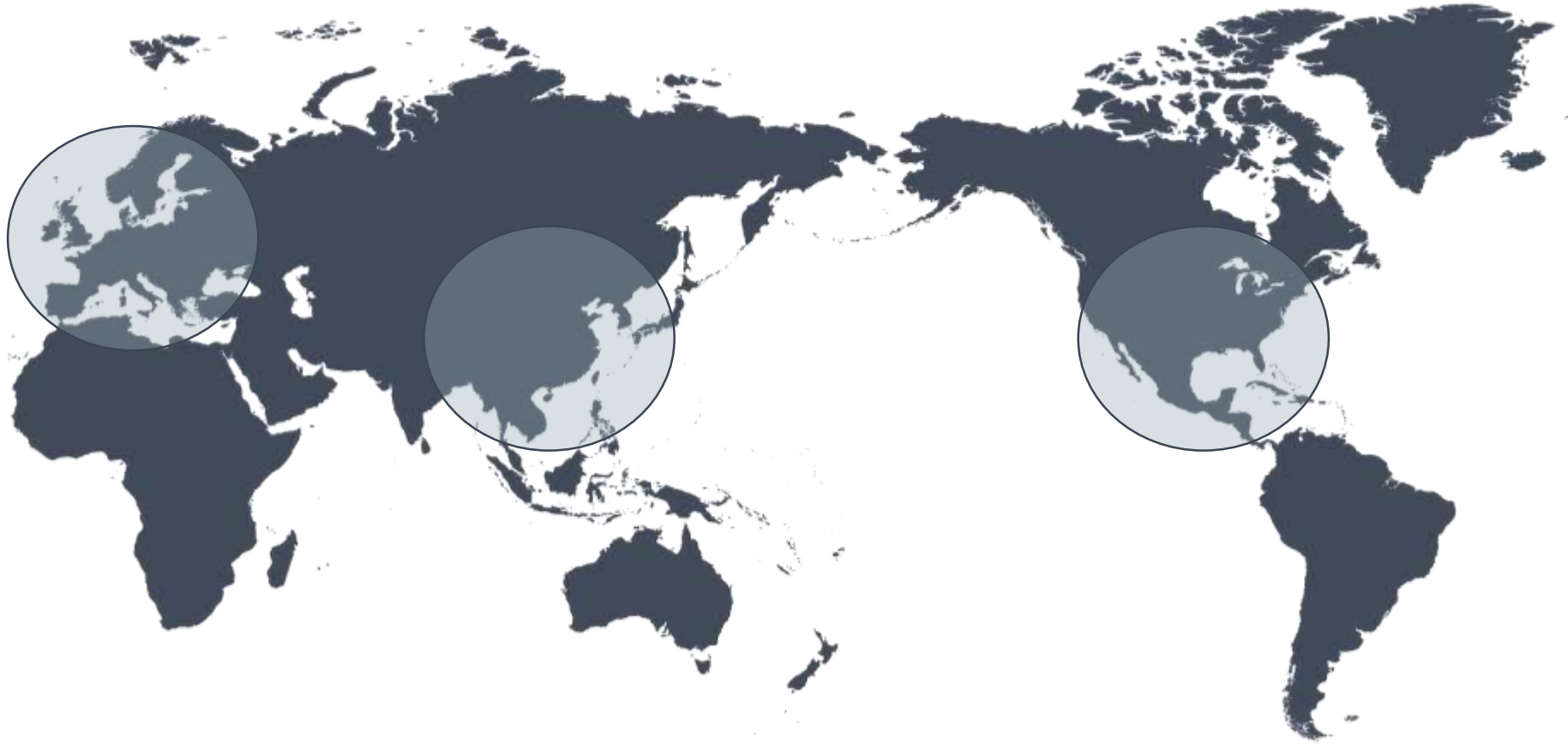
> Consolidation phase

# Combining two cultures





# Creating products for a global market



# To be able to in the frontline, the following is a key:

- > Agile organization model with a dynamic leadership
- > Accountable people with a “can do attitude”
- > Right skills (recruitment and training)
- > A good Performance Management system
- > An open mindset prepared for changes
- > Constantly challenge yourself on timing, quality and cost



*Thank you*