Building global automotive development - the birth and growth of CEVT

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Engine & Transmission Integration

CEVT

1. How it all started

Started 2013 as a joint RD center between Geely and Volvo Cars

Now an innovation center for the Geely Group that keeps over **1600** people in several countries busy. A Swedish registered company, owned by Geely located on Lindholmen in Gothenburg.

Locations
Gothenburg: Over 400 full-time and 770 consultants and recruiting
Hangzhou: Over 300 fulltime and recruiting

CEVT

CEVT

Geely Design

The Geely Group

CEVT first line organisation structure

Executive Assistant
Ulrika Brolin

CEO
Mats Fägerhag

Geely Design
Peter Horbury

Geely Sales, Marketing & AS
Alain Visser

R&D
Jens S

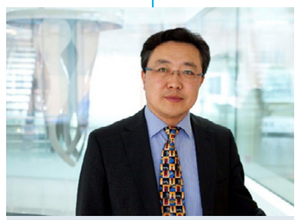
CMA PS/PPL & VLM
Didier Schreiber

Quality
Fredrik Hedfors

Finance
Jon Johnsson

HR
Bengt Enbom

Purchasing
Guan Yu



Business Office Deputy CEO
Gang Wei

2. This is what we do

Original scope – CMA platform

- Enables sharing of technology without jeopardizing brand integrity
- Volvo Cars and Geely Auto remain in full control of next generation C-segment cars
- Tailor-made solutions for both Geely Auto and Volvo Cars

R&D Portfolio

> Architecture development

Creating new modular architectures and key components for C-segment cars

> Top hat development

Creating complete, customer focused vehicles based on the new architectures

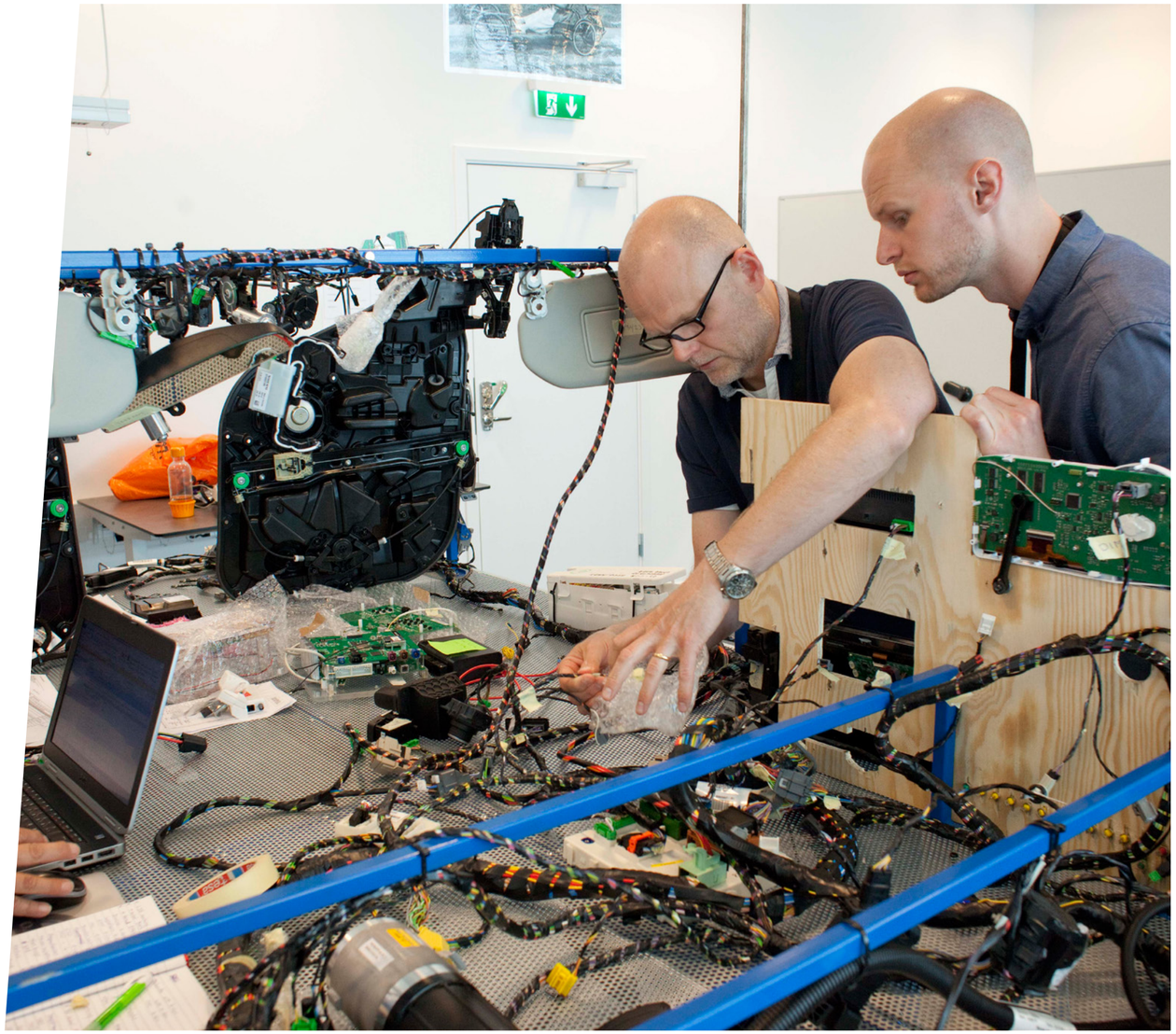
> Shared component development

Creating technical solutions applicable to both brands and customer profiles

> Complete vehicle design

Creating beautifully designed vehicles that expands the customer segment

> Advanced Enginering and New Technologies

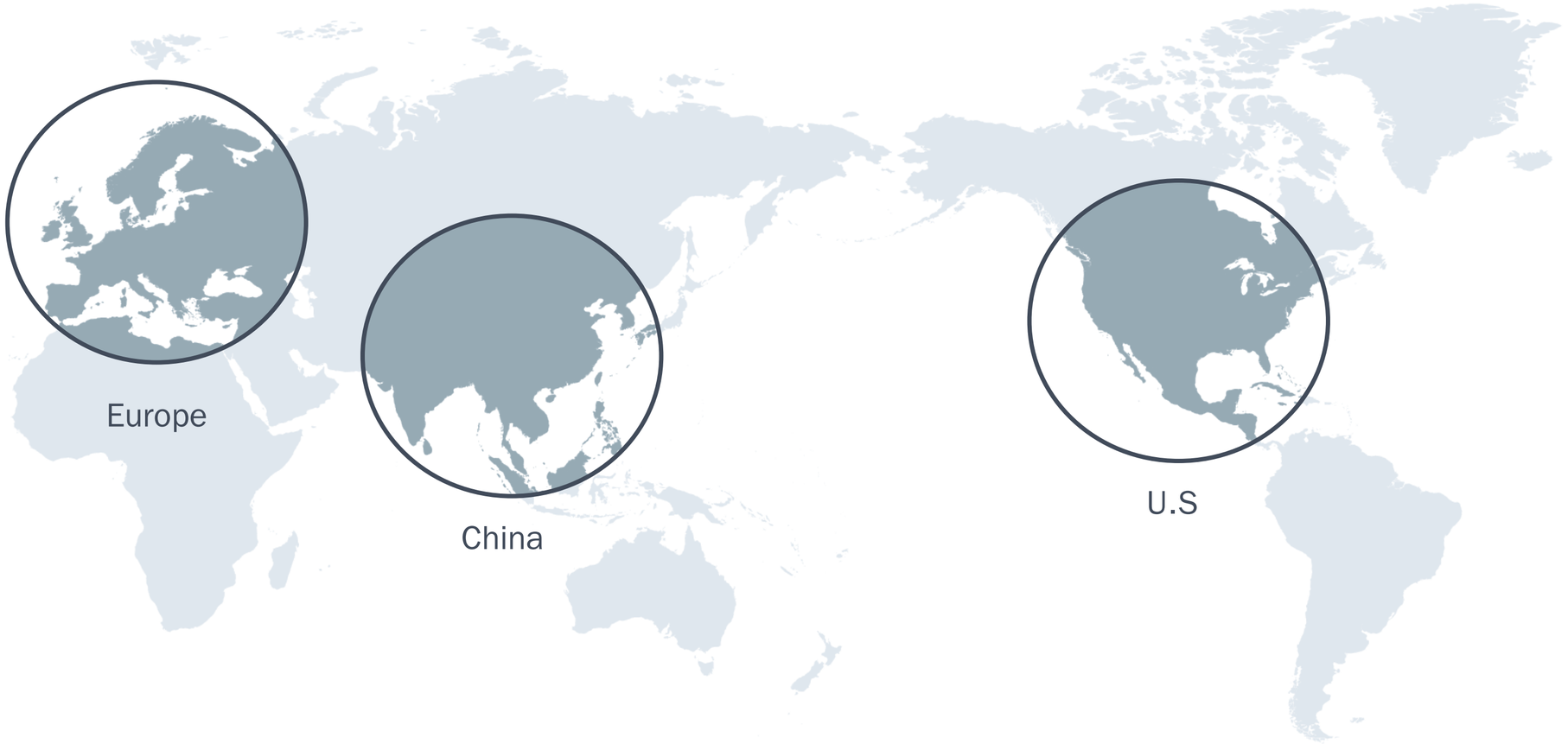


Deliverables to

> Architecture and components
> Shared Component Development

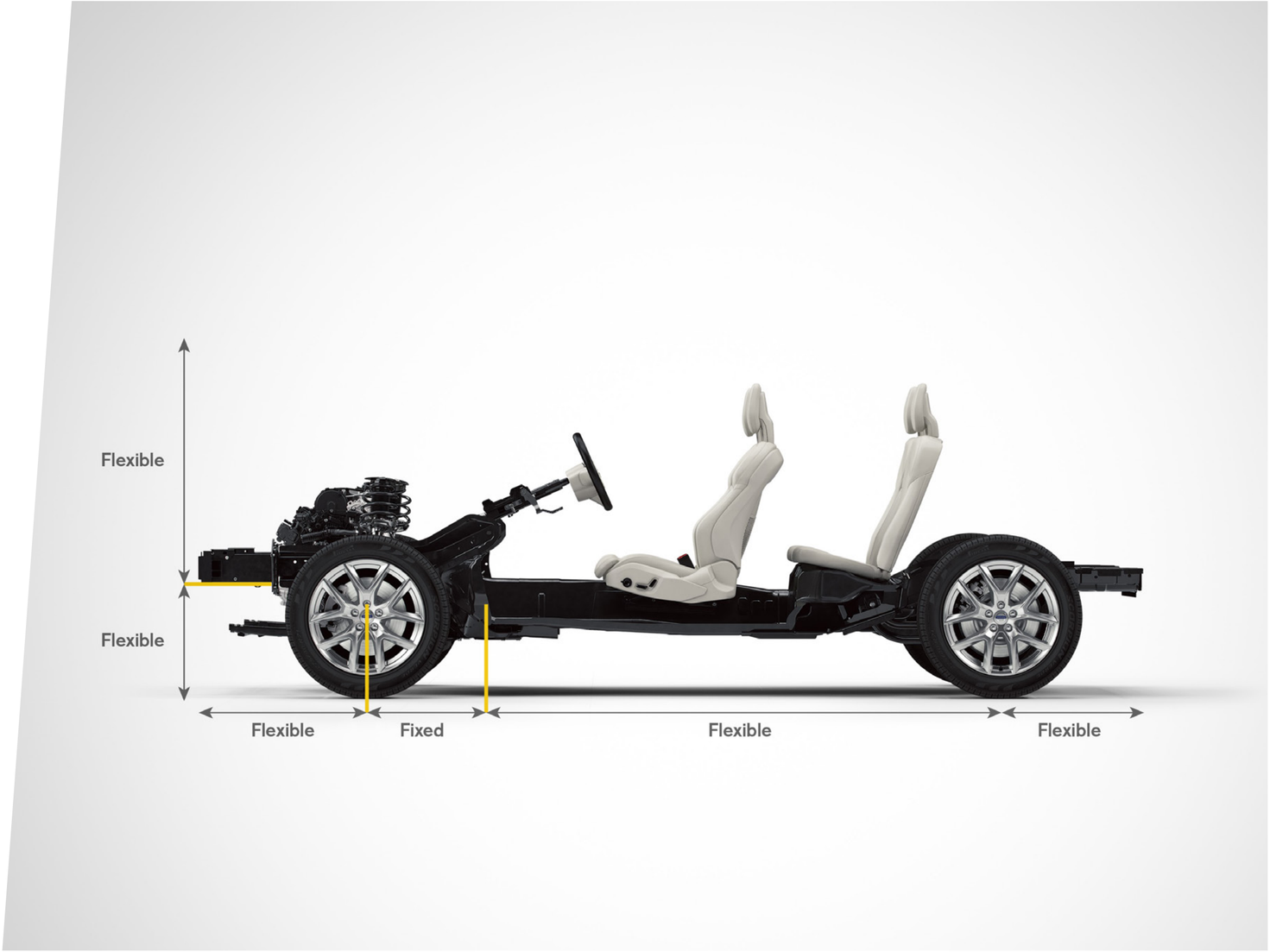
> Architecture and components
> Top Hat Development
> Shared Component Development
> Complete Vehicle Design
> Advanced Engineering and New Technologies

Creating products for a global market



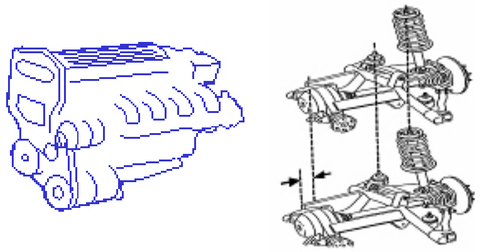
Compact Modular Architecture (CMA)

Scalable in length and height

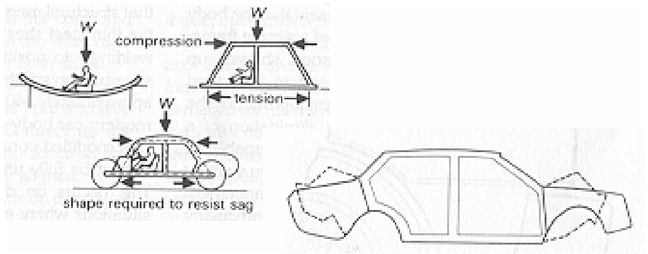


Vehicle architecture definition

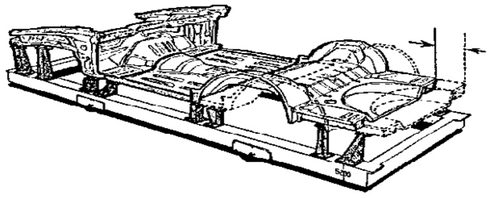
A vehicle architecture is the integration of all five of the following elements for a family of vehicles to meet customer requirements and maximize profits



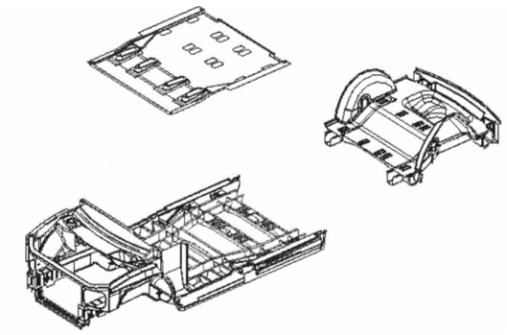
The Set of Common Components (BOM)



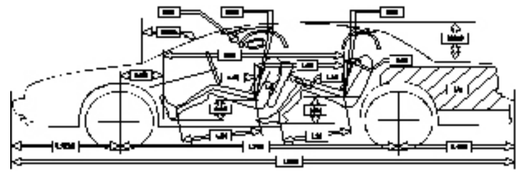
Functional / Performance limits



The Common Manufacturing System (BOP)



A Set of Common Interfaces



The Range of Dimensional Flexibility

3. Global automotive development

Global development drivers

The automotive industry can have different drivers for setting up global development, e.g.:

- Exploring global economy of scale; commonality of parts and tools, developments costs…
- Understanding new markets and requirement
- Utilizing global competence and resources

Global development enablers

To run a successfull global development there are some key enablers to tackle

- Global culture and organization
- Global processes and requirements
- Global IT system strategy and landscape

Global development set-ups

The ”Big Brother rules”:

- One part of a corporate group is the origin / base / technically more advanced / has financial lead
- The other companies are directed by the main company in terms of e.g. processes, systems, technical decisions

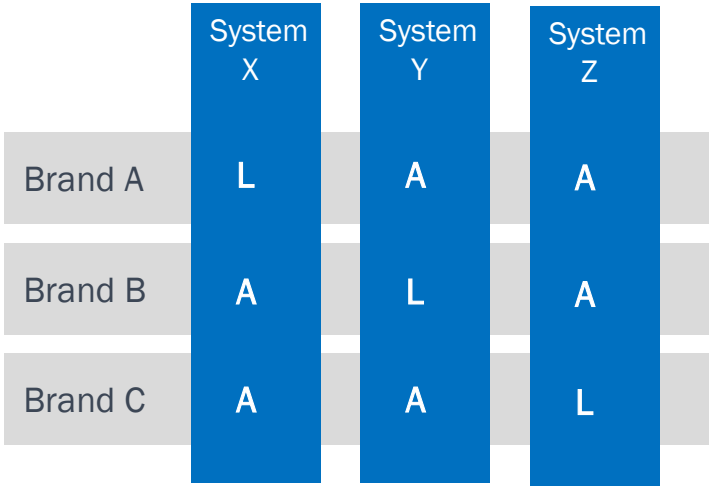
Global development set-ups

The ”mixed group”:

- A mixed corporate group with no clear dominance base or defined global strategy
- Complex joint venture structures in corporate groups tend to fall into this category
- Challenging best practice discussions can occur - and at worst – block collaboration

What is the objective?

Global lead per specified area; e.g. commodity



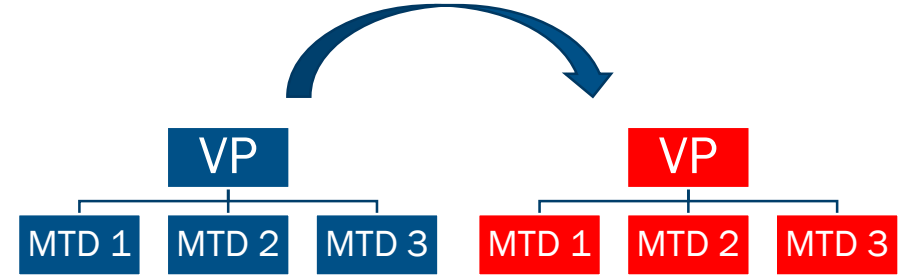
Dynamic utilization of resources

4. Building global CEVT

Making something
entirely new

Global culture and organization

- Starting from scratch with a organization build for dynamic growth
- Mirroring of organizations EU – China for clear communication and responsibility
- Extensive cross-cultural training on both sides - tailored to role
- Value - Can-Do-Attitude

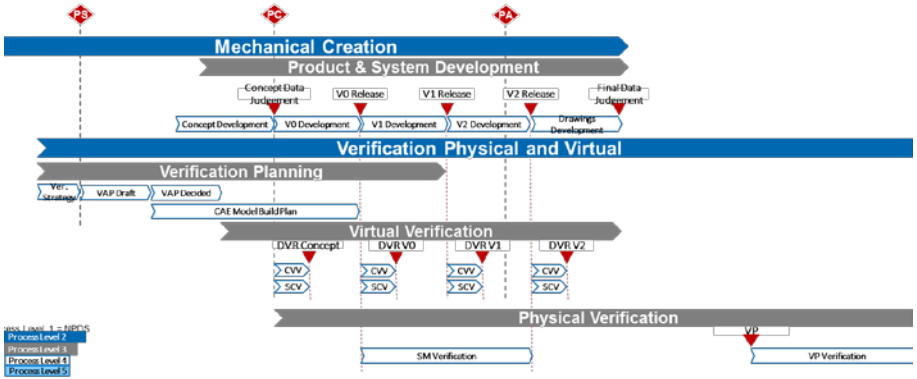


Mirroring organizations

Combining two cultures

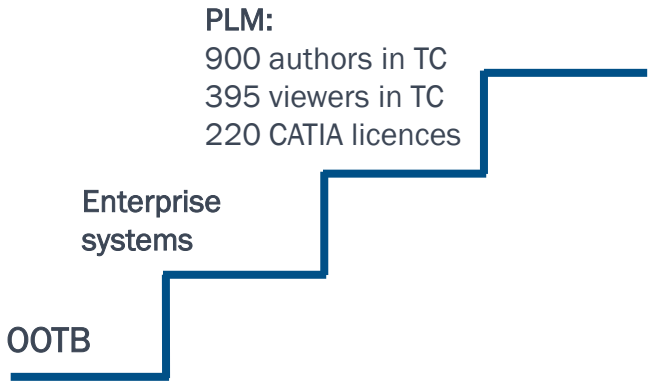
Global processes and requirements

- Building a product development system not only for CEVT but also for Geely
- Establishing gateways, milestones, processes, methods, tools and their interaction
- Technical requirements are defined in close alignment with customer brands

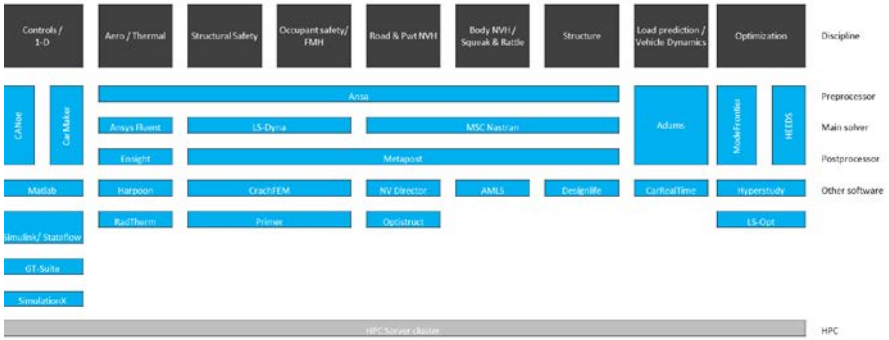


Global IT system strategy and landscape

- Starting completely from scratch to build a global IT environment
- Dynamic step-by step build of all systems – e.g. PLM, CAE, Project & line data
- Agile IT development – daily stand-up meetings
- Every 2-4 weeks modifications to the systems



Constant growth and development



From zero to 100 - current CAE landscape

Corporate group collaboration

CEVT not only delivers to the corporate brands of Geely but also utilize capacity and resources from the group

- Technical interfaces are being defined and built
- Collaboration processes established and refined

Where are we heading as a company?

- Increasing scope
- Continue the journey on global development

“The foundation for Geely´s future European operation”

Questions?