



Company Presentation

MCA-CDT-15/11/2018



Company Overview

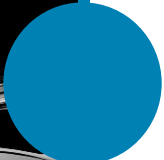
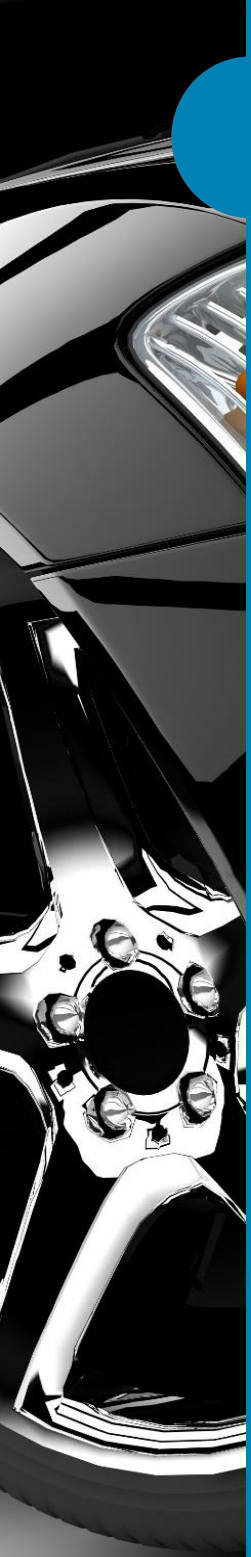
MCA Engineering Italy as part of MCA Group



- *MCA Engineering Italy is an **Engineering and Consulting** company born in Turin in January 2016.*
- *It is part of the **MCA Groupe**, born in Paris in 1991, and made by more than 1000 engineers around **Europe**.*
- *We support our clients in the development of their projects through **in-house development** and/or **on-site solutions**.*
- *Its business model is based on the **Open Innovation** approach.*
- ***Academics and engineering partners** collaborate with MCA in the development of R&D projects based on state-of-the art technology.*

**“Driven by ambition.
Powered by engineers.”**



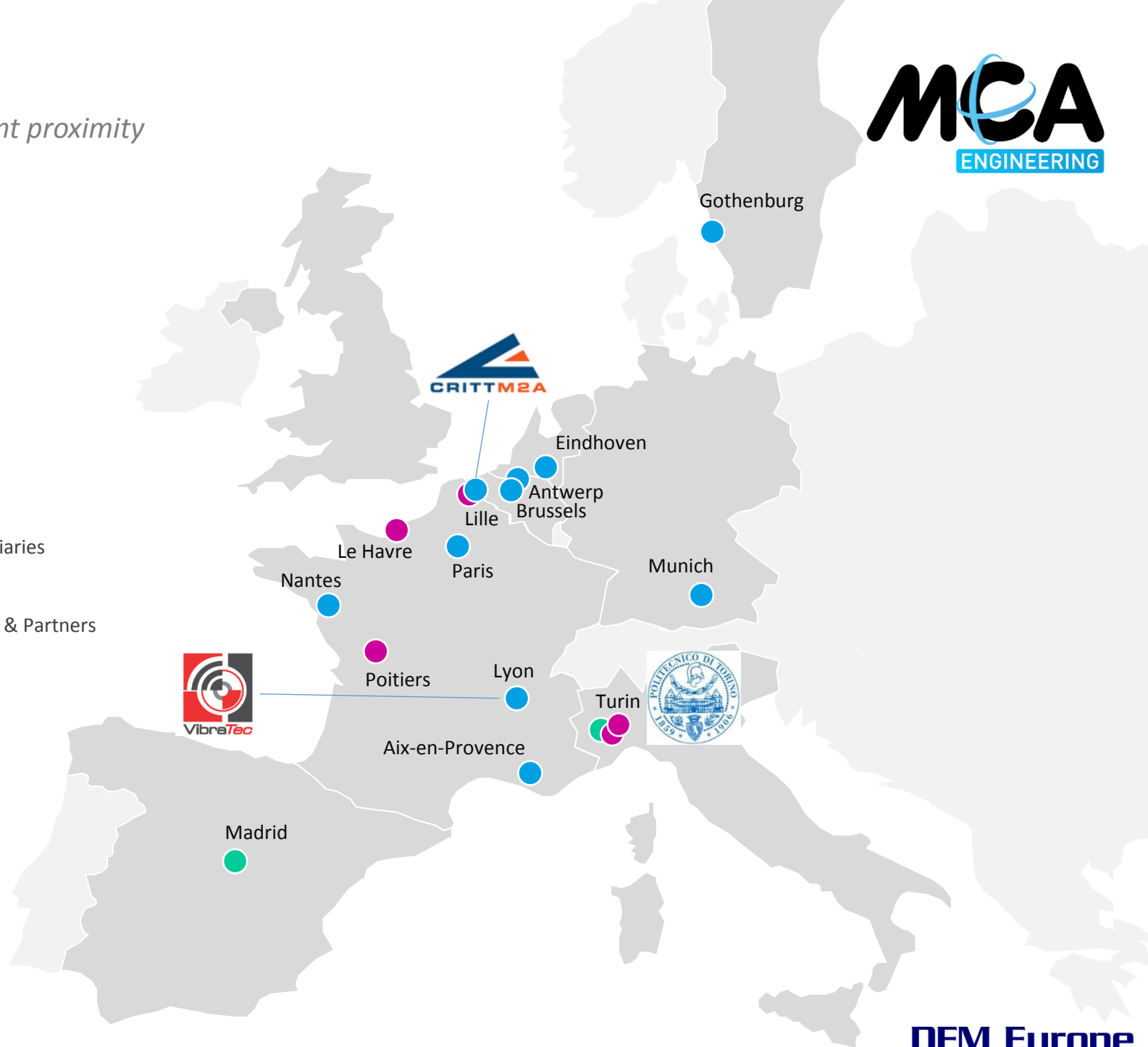


Footprint

To enhance client proximity

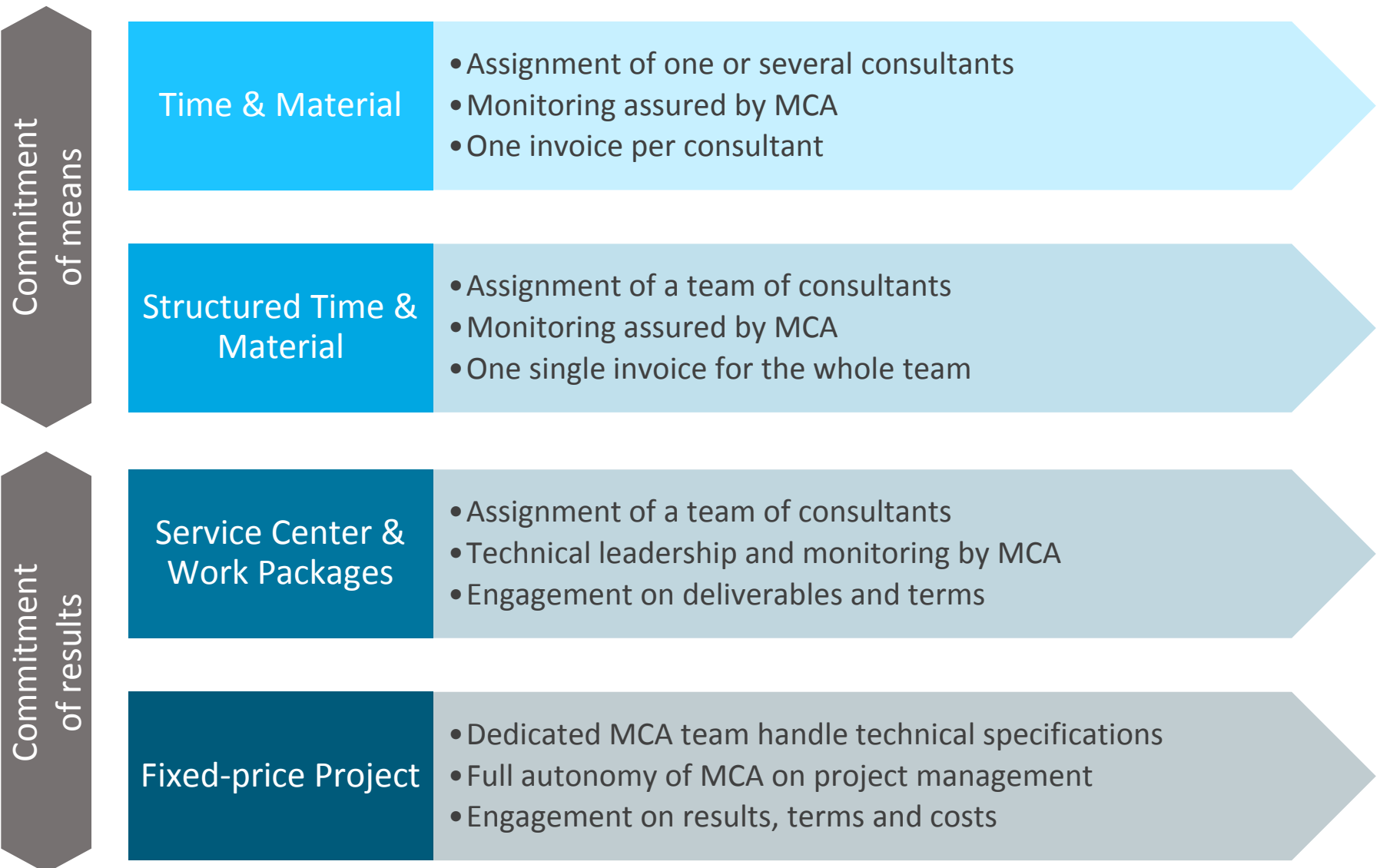
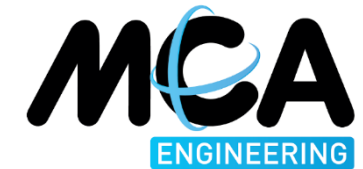


- Agencies & Subsidiaries
- New Subsidiaries
- R&D Departments & Partners



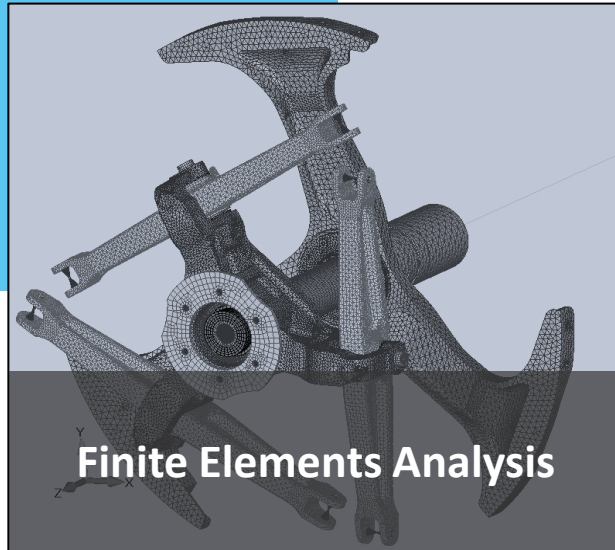
Our offer

Adapting its offer to the client's needs : key to maximize client's satisfaction



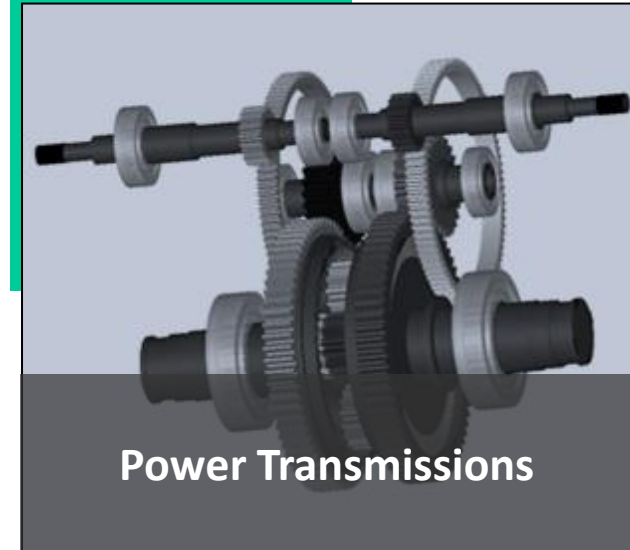
Mechanical Expertise

Work package Services



Finite Elements Analysis

Metallic & Composite structures
Non linear (Materials, Geometry)
Fatigue (Stress-life / Strain-life)
Shock & Vibration
Damage Tolerance
Buckling / Post-buckling

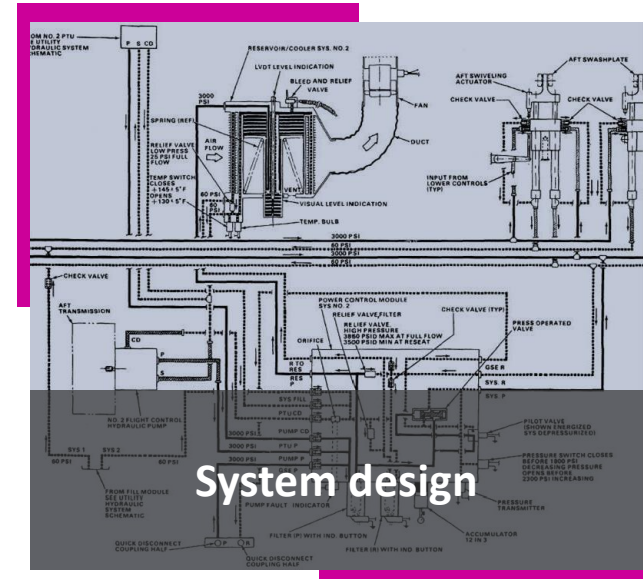


Power Transmissions

Helical gears (ISO6336, AGMA2001-D04)
Bevel gears (AGMA2003-C10)
Wormgears (ISOTR 14521, AGMA6034-B9)
Bearings, shafts & connections
Fatigue & Wear analysis
Performance analysis (high/low temp)

Mechanical Expertise

Work Package Services



Full concept design

Mechanics

Industrial automation

Powertrains

From specification to drawing

Control systems (Open/closed loops)

Performance analysis

Dynamic analysis

Offshore-Nearshore CAE Simulations

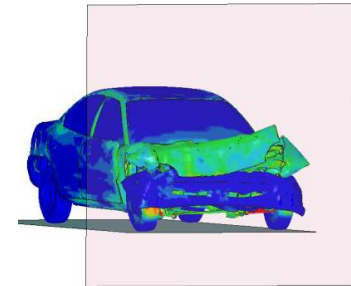
DFM Europe – MCA Group partner



DFM Engineering is a French engineering center based in Vientam

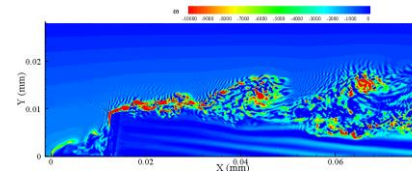
Engineering (advise, conception, simulation)

- Impact study of basin (basin / PNO) Euro NCAP following
 - Mesh parts, perform calculations, analysis of results
- Thermo-mecanic analysis of engine distributors



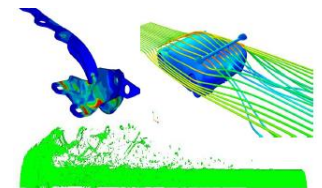
R&D and Advanced Modeling (metholodgy)

- Scientific modeling and implementation of physical models
- Development of dedicated tools, scientific code (Alster, OpenFOAM, ...)



IT (programmation, HMI, Open Source, HPC)

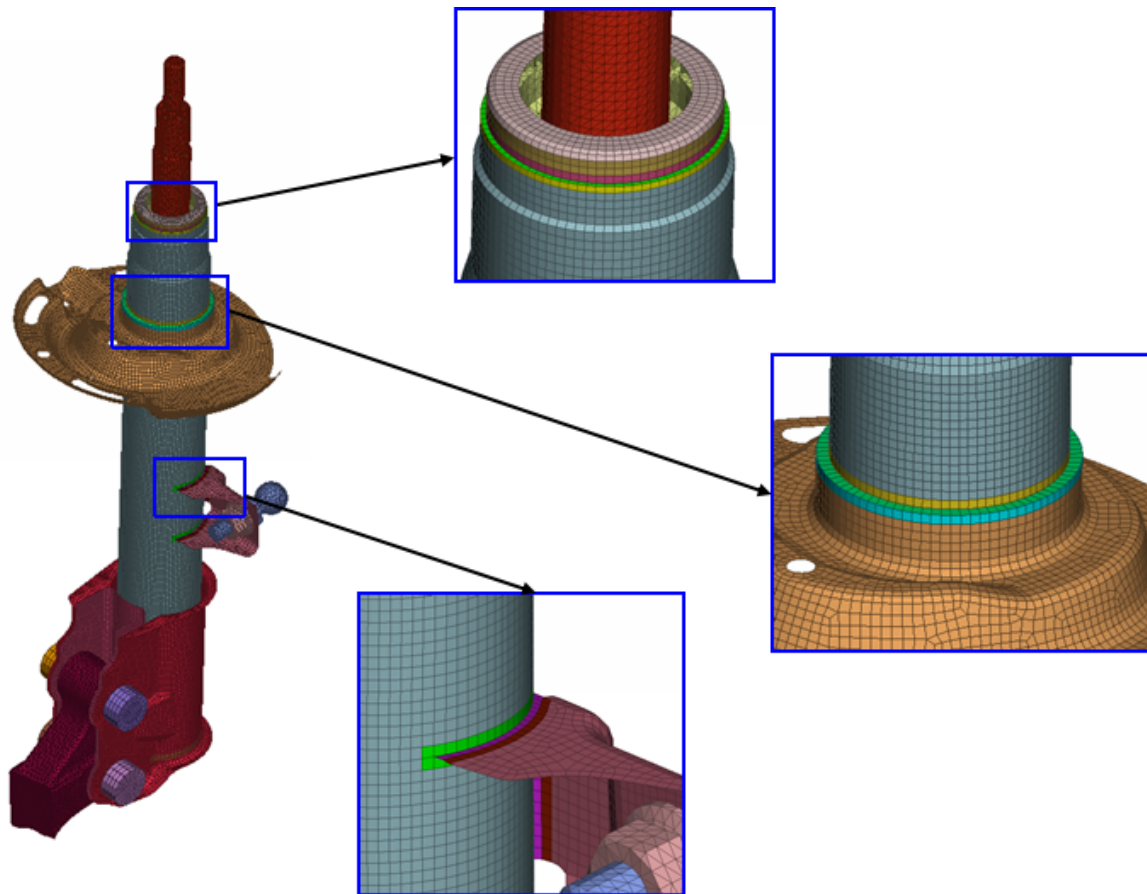
- Development of business applications software and HMI (C++, Visual, Delphie, ...)
- Development target solvers based on Open Source (OpenFOAM, Aster ...)
- Full software developement



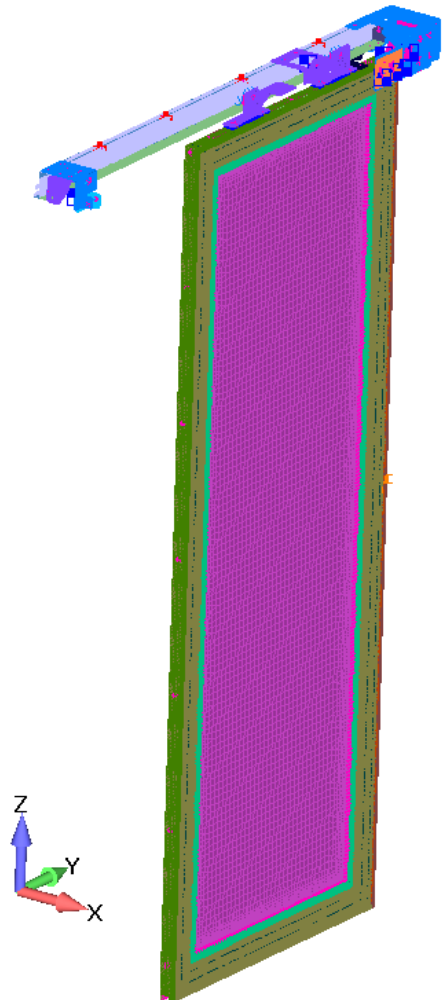
Turn Key Projects

Mechanical Competence Center

Automotive:
Shock Absorber



Railway:
Cabin Doors



Automotive E/E Systems

Electric and Electronic systems engineering

E/E System Engineering

- Component requirements development (Radar, Ultrasound, Camera, ...)
- Functional technical specification development
- Vehicle functions development (IPC, BCM, ...)
- Requirement management (DOORS, Polarion)
- ADAS features development (ACC, AEBS, LK, TJA)



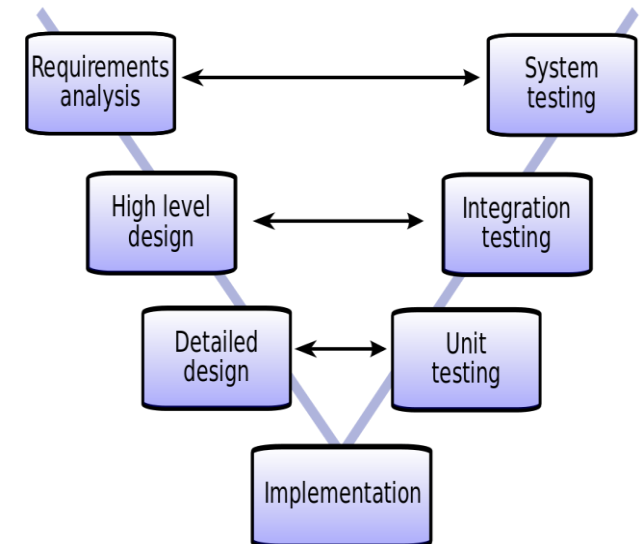
Verification and Validation

- ECU Testing (VECTOR CAN tools)
- HIL system configuration and testing
- ADAS Virtual Validation



Functional Safety (ISO26262)

- S-FMEA development
- Use-cases definition and HARA analysis

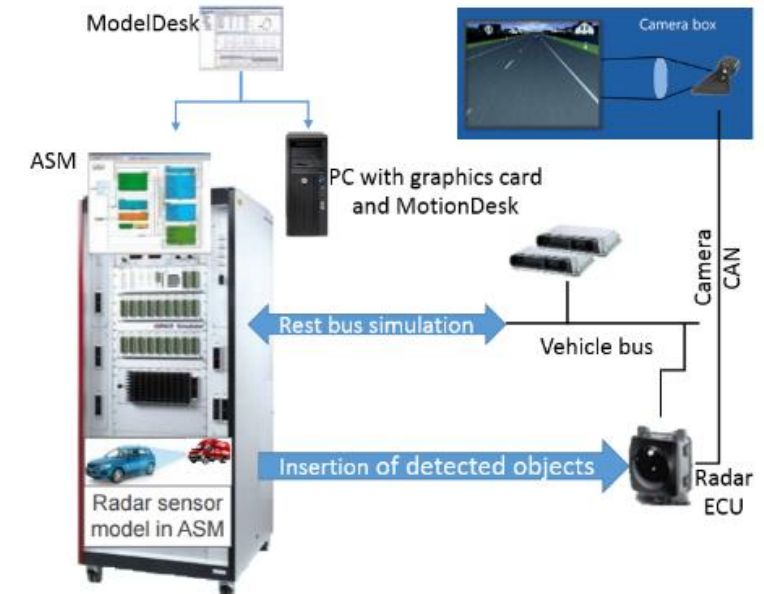
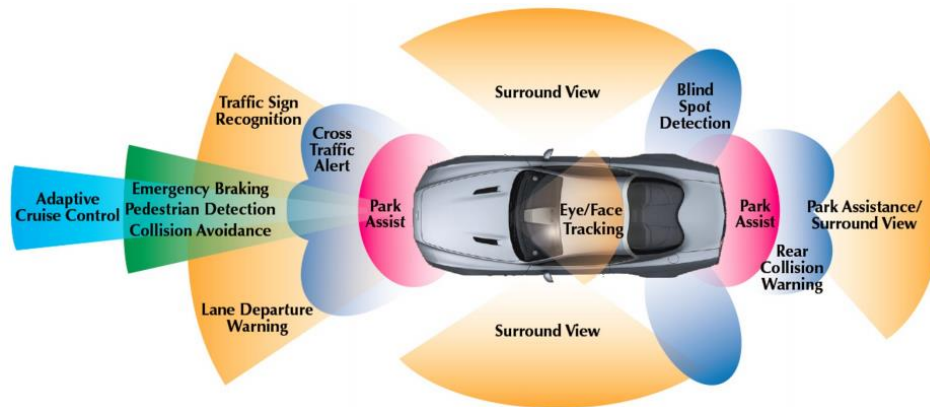


ADAS Virtual Validation

Vehicle-in-the-loop, SIL, MIL, HIL

ADAS system development through Virtual Validation

- Control Algorithm calibration (e.g. Drive-by-wire)
- ECU testing, benchmarking
- Vehicle integration testing
- Grounding optimization
- ADAS architecture benchmarking
- ...



Focus on ADAS systems

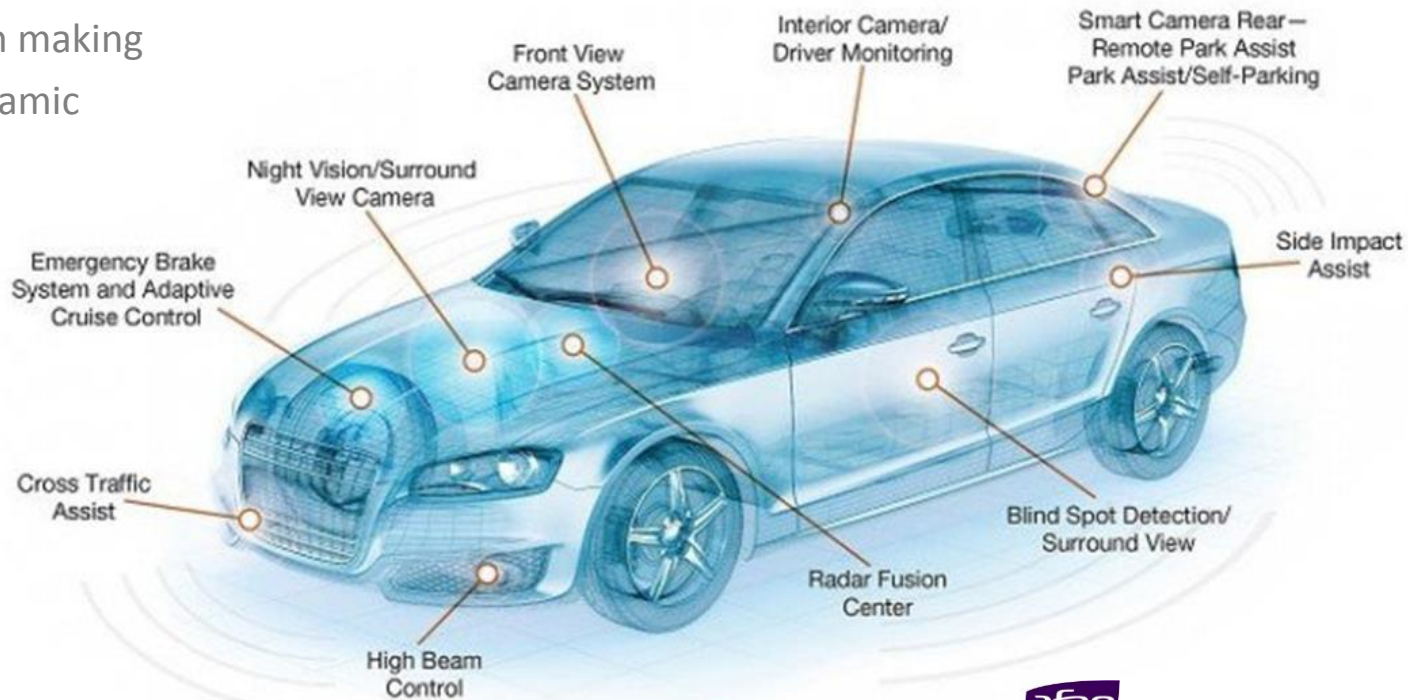
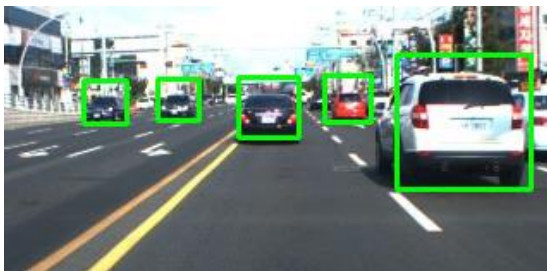
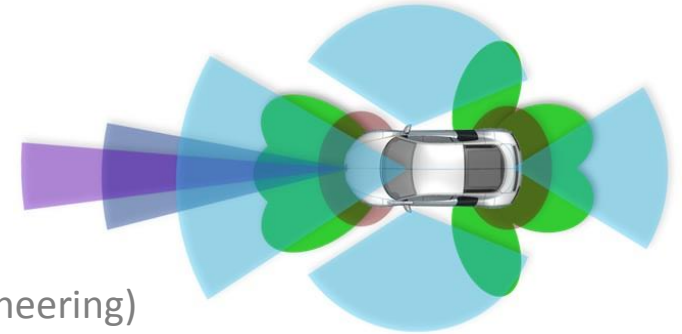
Advanced Driver Assistance Systems development

ADAS function design, verification and validation

- Functional specs definition
- Architecture design and system integration
- Software/Hardware-In-the-Loop (SIL, HIL) validation

ADAS engineering

- Sensing & Perception (Radar/Camera/LIDAR system engineering)
- Positioning and mapping (GNSS, V2X)
- Data fusion e decision making
- Vehicle control & dynamic



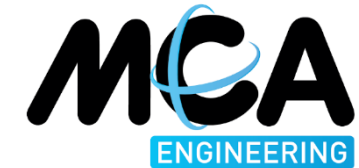
The Future: Intelligent Transportation Systems

Connected Vehicles, Surround Sensing and Internet of Things



Testing Facility

CrittM2A – Participated by MCA Group



CRITT M2A is an independent R&D testing center based in Northern France

4 Departments

- NVH
- Engine
- Turbocharger
- Electric

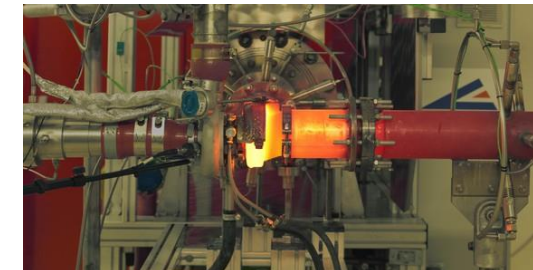
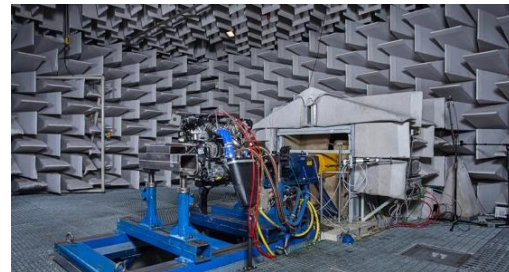
Headcount: 30

Annual Turnover

- 2014: 2,5 M€
- 2015: 3,1 M€
- 2016: 4,0 M€

Customers

- Worldwide: More than 70% of sales made out of France: Germany, USA, Netherlands, Japan
- Manufacturers & OEMs (Car & Trucks), Tier 1 or Tier
- Automotive, Motorsport & Aerospace



Noise and vibration control

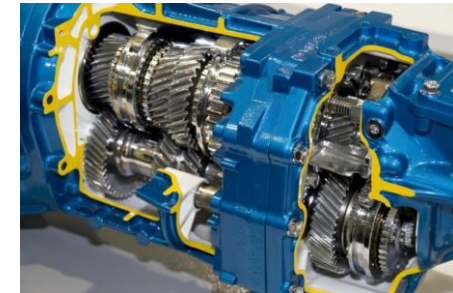
Vibratec – MCA Group partner



Vibratec is a French company in vibroacoustics analysis and testing of powertrains and gearboxes

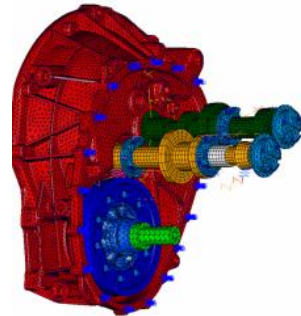
Structural reliability and noise of transmissions lines

- Excitation characterization (teeth error and mesh stiffness)
- Dynamic analysis (dynamic FEA, stress and strain evaluation)
- Experimental diagnosis (instrumentation of rotating parts, experimental modal analysis)
- Design of solutions (optimization of teeth and structure)
- Know-how transfer (dedicated training)



VIBRAGEAR software for whining noise

- Transmission error and mesh stiffness calculation
- Gearbox modal analysis (Nastran)
- Dynamic response calculation



Experimental diagnosis

- Measurement services
- Measurement instrumentation: encoders, slip rings, laser vibrometer, no contact displacement sensors

