Build your network,
Transform your future

Dr. Jochen Langheim
VP International Relations
• MOVEO is one of 71 competitive clusters ("pole de compétitivité") in France

• Creation of concept in 2004

• Bring together industry and research to boost innovation and employment
Vision

※ The future of the automotive industry in France depends more on the ability to compete through innovation than on a downward trend in labor costs

※ The challenges of tomorrow’s mobility require that actors work together in a collaborative way, using all the skills of the ecosystem

※ Better efficiency will be achieved by simplifying innovation support schemes as well as optimizing industry support organizations

This is the fundamental purpose of Mov’eo
Mov’eo today

70% Of Automotive R&D on Mov’eo territories

A very efficient cluster
According to DGE assessment

380 members
200 SMEs growing for 7 years

335 labelled projects
€ 1,4b budget

An internationally active cluster
Two major European projects

+100 technological experts

+400 Press impacts per year

...working together within the cluster
Among our members

Large Industry

SMEs

Research organizations

200 innovative SMEs
Mov’eo and its ecosystem

Automotive clusters cooperation

Cooperation with the VEDECOM Institute for Energy Transition

Cooperation with the French Automotive Industry Platform (PFA)
From Research ideas to business and employment

**Research Projects**
- LABEL MOV’EO

**RL 1**
- Basic Technology Research

**RL 2**
- Technology Development
- Research to prove feasibility

**RL 3**
- Technology demonstration

**RL 4**
- System, sub-system Development

**RL 5**
- System Test
- Launch & Operations

**RL 6**
- Technology Development

**RL 7**
- Technology demonstration

**RL 8**
- System Test
- Launch & Operations

**RL 9**
- Technology Development

**Factory**
- « Concept » Factory
- « Technological projects » Factory
- « Company Project » Factory
- « Product & Growth » Factory

**MVO’EO GROUPEMENT**
- Business Organisation
- Export
- Sales

**Market studies**
- Business Models
- Financing plans
- Fundraising

**R&D**
- FUI projects
- LABEL MOV’EO

**JOBS**
**Mov’eo Business Groups**

*Boosting turnover by playing as a team*

MOV’EO helps its members develop consortia, with SMEs **selected for their skills and their complementarity** to develop additional business and seek new markets together.

**Already 4 groupings of high technology**

- **INI** | Digital Integration for Industry
- **ITS INFRA** | INFRAstructure and Intelligent Transport Systems
- **ADAS** | Advanced Driver Assistance Systems
- **WATT STORAGE** | Development and integration of energy storage system
NEXYAD : Applied maths for real world applications « that work »

Customers in the Automotive field : e.g PSA Peugeot Citroën, RENAULT, BOSCH, . NISSAN, TOYOTA, VALEO

member of Mov’eo (Imagine Mobility) & Groupement ADAS
https://www.youtube.com/watch?v=QMSghFm5moE

NEXYAD modules for ADAS and Autonomous Vehicle
Road Detection RoadNex, Obstacles Detection ObstaNex, Safety estimation SafetyNex

Demo Cars Prototypes
B2B

New Cars After Market
B2B
B2B2C

After Market
B2B2C
B2C

NEXYAD modules on PC using the RT-MAPS framework

NEXYAD modules on smart phones (and IOT devices) using a lean run time version of RT-MAPS framework
Prevention of Accidents with animals

Traffic management

Traffic jam detection

Cooperative road systems V2X

Driving time estimation
STMicroelectronics

Car Infotainment & Connectivity
- Digital Tuners
- Positioning & Telematics
- Satellite Radio
- Analog Tuners
- Car Infotainment Processors
- Audio
- Car Radio
- Vehicle to X (vehicle to vehicle, vehicle to infrastructure)

Automotive Electronics
- Charging (12V)
- Active Safety
- EV Battery Management
- Power Electronics
- Airbag
- Car wiring and networking
- Thermal Engine Control
- Electrical Engine Control
- Automatic Transmission
- Steering (EPS)
- Suspension
- Braking (ABS, VDC)
- MEMS
- Imager
- Door & Mirror control
- Lighting
Global Mobility (1960-2000)

**Industrialized Regions:**
- North America
- Pacific OECD
- Western Europe

**Reforming Economies:**
- Eastern Europe
- Former Soviet Union

**Developing Economies:**
- Centrally Planned Asia
- Latin America
- Middle East & North Africa
- Other Pacific Asia
- South Asia
- Sub-Saharan Africa

Source: Schafer and Victor (2000) - Ranges based on IPCC IS92a/e scenario (from presentation of Y. Crozet)

→ car, car sharing, busses are the winners
Effective Speed (Illich / Crozet)

\[ v_e = \frac{s \cdot v_m}{s + c \cdot v_m} \]

With
- \( v_e \): effective speed
- \( v_m \): mechanical speed
- \( s \): hourly salary
- \( c \): cost per km

### City
- Bicycle
- VAE
- Car Sharing
- Car ville
- Bus ville

### Inter-Urban
- Car campagne
- Bus campagne
- TGV

### Air
- A320
- Concorde
Roadmap Mobility (in general)

- Electro Mobility
- Improved internal combustion engine
- Car weight reduction
- Increased active safety
- Autonomous driving
- Communicating car
6 strategic key areas

Address the scientific and technical challenges to invent tomorrow's mobility...
Intelligent Mobility Solutions

SMI key area

Challenge: design, develop and integrate intelligent and sustainable solutions for mobility of persons and goods in urban and rural areas.

- Intelligent Transportation Systems (ITS) for safety and services
- Infrastructure: 5th generation roads
- Technologies at the service of seniors and people with reduced mobility
Road User Safety

SUR key area

**Challenge:** increase road safety for all types of users in cities and on roads

- ADAS and automated driving technologies
- Human/Machine Interaction and coordination for safety and services
- Safety of motorised two-wheelers (2WD)
Mechatronic systems for vehicle electrification

SME key area

Challenge: generalize the electrification of functions through innovative mechatronic components and systems.

- Electrical machines and actuators for electrified and hybrid vehicles
- Active and passive components integrated into mechatronic objects
- High performance materials for mechatronics
- Robustness and manufacturing processes
With Mov’eo International, we actively assist our members in their R&D and international business development

- Organisation of four thematic missions per year in USA, Canada, Brazil, China, Japan, Korea...
- Access to contacts and contracts within Europe through partner clusters as SAFER (Sweden), Bayern Innovativ (Germany), ISMB (Italy), CEAGA (Spain), Auto Muntenia (Romania) or AC Styria (Austria)
- Supporting members in their international development strategy, in connection with Mov'eo Development services.

Fast Fact

*SME cluster members forge more partnerships abroad on an innovative project that other SMEs: 20% against 2% (Source: DGE)*
Sweden: SAFER + Lindholmen Science Park (Gothenburg) + Chalmers
Italy: ISMB + Polito (Torino), CCI, torino wireless
Spain: CEAGA (Vigo) Universidad de Madrid
Austria: ACStyria, ACVR, AAA
UK: NEAA (Sunderland)
Romania: AutoMuntenia (Bucharest)
Slovakia: AKS (Slovakia)

Germany:
E-Mobility Cluster (Regensburg)
RWTH (Aachen)
BWI / TU (Stuttgart)
TU (Munich)
ECPE / Bayern Innovativ

Nederlands: HTAS & ATC

+ China + US + Korea + Japon + Israel (ITS Israel)...
Through representations and business trips

International networks:
EGVIA; KIC EIT HEALTH
Some success stories / products

Mooville
Véhicule de livraison urbaine à motorisation électrique

SiCool
Convertisseur en Carbone de Silicium (SiC) refroidi par modules SprayCooling

I-DEEP
Serveur d’exécution automatique pour la validation d’algorithmes ADAS, notamment vision

My route assistant
Application mobile et/ou boîtier embarqué permettant d’évaluer la conduite responsable
France NFI & Bordeaux

- Reduced plan for re-industrialization of France
- One focus on EV and autonomous car
- 16,000 charging stations for France
- Autonomous car demo at ITS Bordeaux
- International relations: strengthen collaboration with GERMANY
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