Why Lightweight?

- Creating **the future in automotive** with **lightweight materials and design**
- Safer, lighter, more fun to drive, environmentally friendly thanks to material savings, **reduced fuel consumption** and **CO₂ emissions**, increase range
- **Cost-efficiency** in **high-volume production cycles** thanks to new progresses in manufacturing technologies

„Light Vehicle 2025“ is an EU-funded Automotive cross-border project (by Interreg) in the Euregio Meuse-Rhine
Why Lightweight? Automotive Example

- 30% weight reduction leads to significant CO2 reductions
- 3000 liters lower fuel consumption during a 250,000 km life cycle
- CO2 – Emission reduction: During production (synthesis / carbonization): 20 tons
  During whole life cycle: 50 tons

Weight reduction leads to a significant reduction of CO2 and fuel consumption over a life cycle

Source: Toray, Japan Carbon Fiber Manufacturers Association (JCMA), AMAC, M.C. Kinsey
Composites - A key industry for high-wage countries in Europe

Advantages of Composites:

- Germany is the leading supplier country for lightweight applications
- Composites are a key technology to support the economic growth
- Composites have a high technological performance and innovation potential
- Composites allow automated mass production
- Composites are high energy and resource efficient
- Composites bring sustainable and high-quality work places in Europe

Automotive is the key segment for composites and secures work places in Western Europe
Until the year 2020, the Program Interreg VA Euregion Meuse Rhein (EMR) invests **96 million euros** in cross-border cooperation in the Program Area.

This area entails roughly the square between Eindhoven, Leuven, Cologne and Trier, an area with almost 5.5 million inhabitants.

Through the Interreg Projects the European Union directly invests in the **economic development, innovation, the territorial development and social inclusion and education of this cross border region.**

Interreg is funding the project „Light Vehicle 2025“ in the Euregio Meuse-Rhine
• Many highly **innovative, leading companies** (especially SMEs) active in **lightweight, electric mobility and autonomous driving**

• **Attractive region** for automotive business: many representatives along the **entire automotive value chain**, from the raw material producer over technology development to production, from research and development to industrial OEM

• Various OEMs of established and newly established companies are present in the region: Ford, Daimler, BMW (Mini), StreetScooter, e.GO, NedCar, VDL, ADDAX, etc.

• Large multinational chemical companies are present in the region and are very active in the field of composite materials: DSM, Sabic, Lanxess, Covestro, Solvay, ArcelorMittal, Aperam, etc.

• Intermediates like Alro or Schumag, Tier 1s like Punch Powertrain, BOSAL, Tenneco, Tier 2s like ANL Plastics, Zweko, Hercorub, VCST, etc.

The value chain is not yet very developed in the Euregio and many SMEs are still unknown in the region
Who are the key players (mainly SMEs) in the Euregio Meuse-Rhine along the value chain?
Who are we?

**Project Partners**

- Flanders MAKE
- AutomotiveNL
- Campus Francorchamps
- LIÈGE université
- TECHNIFUTUR
- AMAC

**Co-Financers**

- provincie Limburg
- Ministerie van Economische Zaken
- provincie limburg
- Provincie Noord-Brabant
- Wallonie

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Overview of the workpackages

- Project management
  - Gap analysis (market, technology, education)
  - Concept definition (Definition of demos)
  - Demonstrator Projects (Analysis, concept, design, manufacturing, testing)
  - Communication & Dissemination

- Duration: 3 years
- Budget: 2.4 Million EUR
- Deliverables: 6 partners
- Funded by Interreg

We have developed a very interactive project “Light Vehicle 2025” to foster the networking in the EMR region
The aim of the project „Light Vehicle 2025“

Concretely, this project will:

- Platform of automotive competences
- Building a virtual technology center on automotive engineering for the future
- Strengthen the economy
- Secure workplaces
- Bundling technological competences
- Showcase design and manufacturing of selected components
- Demonstration of projects

- Identify and connect companies in the Euregio
- Create a database (Who is who)
- Connect the competences in workshops/seminars/symposium/match-making events
- Manufacturing and testing of 3 demonstrator components
- Provide gap analysis on technologies and on training possibilities
- Select potentials
- Inspire cooperation and cross-border clusters
- Raise awareness of coming market requirements
- Stimulate knowledge transfer
- Provide an up-to-date worker and engineer training framework
„Light Vehicle 2025“: creating a „virtual“ technology center

- R&D and design engineering
- Moulding parts
- Testing equipment
- Tooling
- Production: multi-material systems
- OEMs

The „virtual“ technology center will include a database of lead contacts and projects along the value chain.
Typical demonstrator components for the project

Example Structural parts

Source: BMW 7 series

Example Bonnet hoods

Source: Katcon/Magna

Example Non-structural parts
(Engine cover)

Source: EATC, Bond Laminates

„Light Vehicle 2025“ will assess the capabilities of the regions with the help of 3 demonstrator components
Today, we officially kicked off the project “Light Vehicle 2025” at the Automotive Congress in Eindhoven
We are looking forward to be in contact with you!

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The Partners
Who is the lead partner Flanders Make?

Description:

▪ **Research centre** for the **manufacturing industry** with sites in Lommel, Leuven and Kortrijk

▪ Working with companies, knowledge centres and Flemish universities

▪ Together with all partners, FM closes the gap between **academic research and industrial application**

▪ Performing **pre-competitive research** for product and production innovations in the **vehicle sector, the mechanical engineering industry and assembly environments**

▪ Supporting companies of all sizes step-by-step throughout **innovation projects** and help them to **translate** the developed technologies and acquired knowledge into **concrete products and services**

▪ Supporting to **keep companies and employment** in Flanders

Role in the project:

▪ Flanders Make is the **lead partner** in “Light Vehicle 2025”

▪ **Project coordination** and **financial management**

▪ Provide an overview of the **current market and technologies** for **lightweight automotive solutions**

▪ **Coordinating 3 demo components** from the development over manufacturing, including material selection and manufacturing processes, design and virtual validation of the components

▪ Validation of these components by subjecting them to static and durability tests
Who is AutomotiveNL?

Description:

- AutomotiveNL is the **cluster organization** for the **Dutch automotive industry**, mobility sector, automotive education sector
- Over 170 members.
- From its base of operations on the Automotive Campus in Helmond, AutomotiveNL performs activities essential to its members with a dedicated, highly **experienced team of experts**
- AutomotiveNL is dedicated to working together with all **automotive-related organizations** to address the challenge facing the Dutch automotive industry in the field of **Green mobility, Smart mobility and Efficient, Flexible & Sustainable Manufacturing Processes**

Role in the project:

- Support Flanders Make to provide an overview of the current **market and technologies** and do a **market study**
- Communication and dissemination of the **long-term effects**
Description:

• Campus Automobile Spa-Francorchamps ASBL is the skill center of the Walloon Region, located in Spa-Francorchamps, inside the race track

• Main goals: technical trainings for job seekers, schools (students & teachers), workers incl. “Mechanics”, “Industry” and “New technologies”

• Support the economic development and the regional SME’s with its specific equipment

• Enlarge the education impact through partnership with University of Liège

• Provide competences in automotive, racing, bodywork, engines, alternative fuels and eco-technology (EV/HEV/CNG/FCH). Focus on new motorizations, innovative material & smart grid

Role in the project:

▪ Technology monitoring in order to be able to have a top down action to implement the new technology in the training program.

▪ The updated program will be offered to our target group on each level: job seekers, schools and workers in the framework of the long life learning processes.
Description:

• A&M is a teaching and research department focused on transportation systems
• Support 3 masters in engineering
• Bottom-up research in collaboration with industrial partners & technology transfer to industrial network (spin-off, licensing)
• Large portofolio of Advanced Computer Aided Design tools (commercial and research tools)
• Budget of Funded Research Projects: 5.5 Mio€/year (public funded project and direct industrial funding)
• Professors: 20 / Senior researchers: 10 / Technical Staff: 10, PhD students, juniors & Postdocs: 100

Role in the project:

• Conceptualization: Definition of cases studies
• Development of lightweight advanced concepts for the selected case studies using advanced CAD tools (topology optimization and advanced simulation (MBS, composite structures, metal process and forming)
Who is Technifutur®?

Description:

- Technifutur® is a tool (training center) contributing in the local development with 95 workes and 500 consultants
- Supporting the economic regional development
- Technical trainings, seminars, advices
- Technical trainings in 14 domains: aviation, assembly, automation, CAD CAM, energy and environment, image and multimedia, ICT, maintenance, inspection and measurement, management, materials and surfaces, electricity and pneumatics, machining
- Production of prototypes
- Target group: job seekers, students, teachers, workers
- Result in 2017: 16,500 trained people (500/day)

Role in the project:

- Conceptualization: LCA analysis of cases studies
- Gap analysis between the need of the industries and the existing training programs in terms of new technical skills – set-up new training programs
Who is AMAC?

Description:

• AMAC GmbH is an **Industrial and Business Consulting Company** in the field of **lightweight materials** based in Aachen, Germany

• The business model of AMAC is based on three pillars: establishment and development of **networking and clusters** between **universities and industrial companies**, **Sales and Marketing excellence** as well as **innovation and industry project management**

• Dr. Michael Effing is Chairman of the board of the trade associations Composites Germany and AVK

Role in the project:

• Interface to the Automotive OEMs
• Definition of the demonstrator parts with the OEMs
• Business Development
• Organization of a road-show
• Match-making events and workshops
• Overall marketing and communication of the project