

Automotive



Did you know...

Almost all cars worldwide rely on at least one key component developed in Luxembourg.

Automotive

Taking to the road with Luxembourg at your side

Car manufacturers source **components from Luxembourg suppliers** and with more than 50 different nationalities working in the sector, companies have easy access to well-trained engineers to develop multilingual, multicultural customer support teams. This means that international clients are able to receive the service they need conveniently in their own language and with an understanding of their business culture.

Driving innovation

The automotive industry is constantly adapting to new requirements to build safe, clean and connected vehicles. With each and every diversification requiring more R&D, innovation is a key factor for ensuring the competitiveness and success of the automotive components industry. Luxembourg is well positioned in important areas of R&D such as electronics and sensors, Advanced Driver Assistance Systems (ADAS), navigation and on-board diagnostic systems – attracting top-calibre talent seeking a **dynamic community specialised in application development**. Luxembourg supports R&D projects with grants and has put in place a **special programme to promote joint research** that encourages companies to collaborate with each other or with public research organisations. The automotive industry in Luxembourg prides itself on pooling its knowledge and thinking strategically. Competence mapping is carried out on a regular basis to ensure that the country has the players it needs to drive innovation and serve the automotive market of today and tomorrow.

Smart solutions for driving

Cebi Luxembourg is Europe's leading supplier of thermistors, heat-sensing electronic components found in several locations in every car, including the cylinder heads, radiator, coolant hoses, fuel pipes and the engine's air intake. With over **300,000 finished products** leaving its factory in Luxembourg every day, the company supplies 90% of Europe's car makers.

Hidden tread

The Goodyear Innovation Center Luxembourg (GIC*L) is known for its high level of innovation. One example is the new Fuelmax, Goodyear's most fuel-efficient truck tyre range. It includes the IntelliMax Groove Technology, whereby a "hidden" tread pattern is molded in the tyre and a new pattern appears as the initial tread wears. This ensures that **high levels of grip and low rolling resistance** are maintained. When wear progresses to 50%, five new grooves with six ribs appear. At a wear level of about 75%, four contact ribs remain, ensuring good wet grip until the end of the tyre's usable life.



The majority of **Hyundai-Kia vehicles designed for the US market are equipped with an occupant classification system developed in Luxembourg.**

International collaboration in R&D

In 2013, Luxembourg-based sensing specialist IEE was taken over by a consortium of Chinese industrial and strategic investors. The company has strengthened its market share in Europe and the United States, while gaining a foothold in the growing Asian automotive market.

IEE collaborates with the Automation Research Group of the University of Luxembourg's Interdisciplinary Centre for Security, Reliability and Trust (SnT). In 2012, SnT and IEE inaugurated their joint Computer Vision laboratory focused on designing new sensor systems for security technology applications, and the two entities are working together to develop new **advanced driver assistance systems for electric cars**.

For those who prefer to run instead of taking the car, IEE and Kinematix, a leader in measuring human movement, have collaborated on a **new wearable technology to help runners run smarter**. The **shoe sensor** will allow recreational runners at all levels to monitor their movements during a run, obtain an analysis of the evolution of their running technique, and make use of customised exercise plans designed to help them improve.

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Luxembourg's strengths in terms of automotive components

- Luxembourg is located in the middle of the world's leading region for vehicle development and automotive innovation
- All European development headquarters can be visited from Luxembourg within one working day
- Luxembourg serves various car manufacturers in Europe including BMW, Fiat-Chrysler, Ford, GME, PSA, Renault, VW Group, Nissan, Suzuki, Toyota, Hyundai-Kia
- No less than 25% of the automotive workforce are employed in R&D

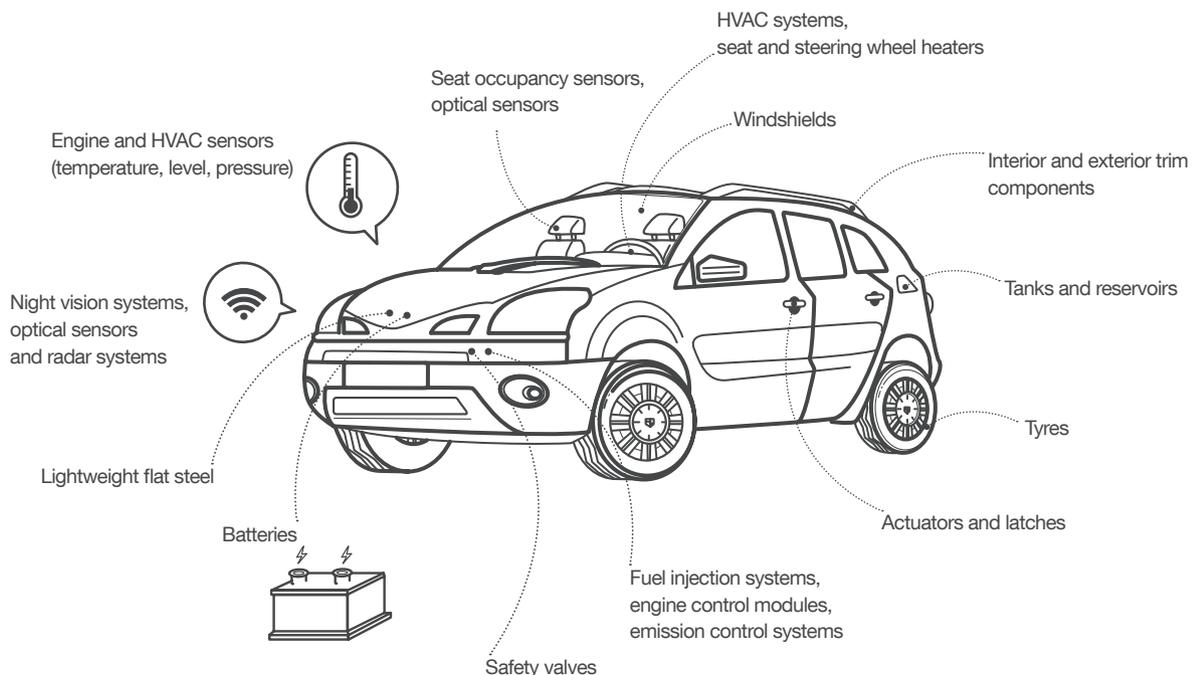
A long-standing presence in Luxembourg

- Goodyear: 68 years
- Delphi: 46 years
- Cebi: 41 years
- IEE: 28 years
- Carlex: 25 years

Game of Roads

The **SnT VehicularLab**, which is part of the Security and Networking Research Group (Secan-Lab), was set up to explore new services that can be developed by making use of **vehicular network technologies**. Scientists from the lab have developed **Game of Roads**, an innovative application that uses sensors to allow mobile phones to create statistical models and that encourages drivers to adopt a safer and more environmentally-friendly driving style. Game of Roads is supported by Baloise Insurance and helps redefine the role of the insurer by offering modern technologies. **Motion-S**, the start-up behind the programme, designs flexible, intuitive and intelligent telematics systems to improve the driving experience. The **Automation Lab** works on the automation of critical technical infrastructures such as energy, water or production systems, **ICT solutions in e-mobility**, mobile robotics (including unmanned aerial vehicles and space robotics), as well as medical devices and applications.

Automotive products and technologies developed by Luxembourg-based companies





BIG DATA – CAR DATA

The connected car industry is expected to be worth €40 billion worldwide by 2018, up from €10 billion in 2012, according to forecasts by the automotive research firm SDB. Connected car technologies cover a wide range of applications, from intelligent infrastructures supporting automated driving, to advanced traffic management and smart routing, aiming at a better utilisation of infrastructures, less congestion, reduced fuel consumption and lower emissions.

DRIVING CONNECTED CAR SERVICES

Luxembourg's innovation friendly environment is fostering the emergence of a budding start-up eco-system, with highlights in this sector such as Motion-S (fleet management, driving efficiency) and Examotive (automotive ICT solutions for automated driving and car-sharing operations). Moreover, established Luxembourg-based companies, both automotive and non-automotive, have identified this market as being important for their future growth. Here are some examples.

- Post Telecom is extending its machine-to-machine (M2M) communication services for the automotive sector.
- Post Telecom is partnering with major international players to offer complete solutions in automotive telematics. French carmaker PSA and Luxembourg's Post Telecom signed a partnership agreement in 2009 to increase the development of PSA's telematics services in Europe. Post Telecom has already equipped more than 1 million Peugeot and Citroën vehicles with its SIM cards. In addition to this, as of 2018, all new vehicles registered in Europe will be equipped with SIM cards in order to activate eCall, an automatic call service, in case of accidents.
- In 2016, Post Telecom signed a contract with Bright Box aimed at launching a mobile network infrastructure that provides connected car services on a European level.
- HITEC Luxembourg provides expertise in satellite communication and traffic management systems.
- IEE has been developing innovative sensors and sensing systems for the automotive industry – leading the way for the safer cars of today. Autonomous driving and connected cars are no longer science fiction, and sensing technologies have an essential role to play in these new functionalities. ●

A NEW GENERATION OF SERVICES

Post Telecom and Hitec Luxembourg are collaborating on the following projects in the domain of vehicular connectivity with an emphasis on emergency services and European safety guidelines.

HeERO 2 The Luxembourg HeERO consortium tests and validates the **common European eCall standards** defined and approved by European Standardisation bodies in real conditions using Post Telecom's networks.

CoMoSeF is designed to provide assistance in the area of cooperative traffic management through connected car networks to help develop and deploy advanced and cost-effective vehicle and roadside data collection solutions in order to **gather valuable traffic information and provide weather and incident data to road users.**

DG-TRAC is underwritten by the European Space Agency and addresses the **tracking and tracing of dangerous goods in the medical sector** integrating and using existing space technologies with GSM/UMTS and the internet. ●

1 million

Luxembourg connects 1 million Peugeot and Citroën vehicles with SIM cards.