The European car industry: from regulatory compliance to industrial competitiveness

Europe is no longer alone on the great circuit of new mobility, but it remains one of the best-placed contenders to lead the next race for the car of the future. The electric vehicle has shifted the industry's centre of gravity: from engine to battery, from mechanics to software, from brand to scale, and from regulation to industrial policy. Europe's opportunity lies in turning a demanding climate transition into a new platform for competitiveness. The task now is to manufacture the car of the future in Europe.

Esther Cases Lozano

Europe still has its engine running

The automotive industry remains one of Europe's great industrial levers: 13 million jobs, around 7% of European Union (EU) gross domestic product (GDP), and a central role in investment, innovation and exports. But the competitive map has changed. Powerful new players with scale, technological speed and strong industrial capacity are challenging European manufacturers not only for market share, but also for part of the value added and the viability of their production model. That is why Europe's industry needs to reposition itself and move from reliance on its historic position to building a new competitive advantage in batteries, software, costs, supply chains and speed of innovation. Europe's response to the challenge has already begun to take shape. In March 2025, the Commission presented its Action Plan on the Future of the Automotive Sector; in December 2025, it followed up with an Automotive Package intended to add flexibility, simplify rules and reconcile climate neutrality with industrial competitiveness[1].

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The race has moved to a new circuit: the electric car is the new competitive arena

The electric vehicle has become the main field of industrial competition in the automotive sector; investment and rivalry are already concentrated in this arena.

The scale of the change is visible in the global market. The International Energy Agency (IEA) estimates that more than 20 million electric cars were sold in 2025, representing one in every four new cars. For 2026, it expects 23 million sales and a 28% global share; in Europe, sales could grow by 20%, with one in every three cars sold being electric[2].

[1] All online sources cited in this document were accessed on 6 August 2026. European Commission (5 March 2025), 'Boosting the European car sector' and 'Action plan on the future of the automotive sector'; and (16 December 2025) 'Automotive package'.
[2] International Energy Agency (20 May 2026), 'Global EV Outlook 2026', chapter 'Executive summary'.

China has reached this phase with an advantage in scale. The IEA reports that Chinese automakers supplied 60% of the electric cars sold worldwide in 2025, compared with about 15% each for European and North American automakers. China also accounted for more than 80% of global battery-cell production[3].

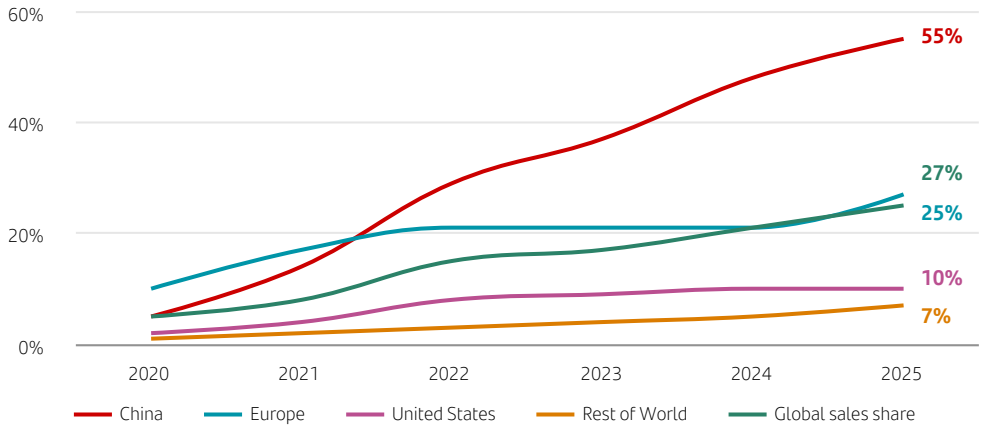
The risk is not only manufacturing fewer cars: it is becoming an assembler of technologies developed elsewhere

That position is not explained solely by public financial support: it also rests on an integrated supply chain, fast development cycles, a broad product offering and falling costs. In 2025, 70% of battery-electric cars sold in China were cheaper than the average conventional car[4].

The United States offers a different model. Its electric vehicle market is less homogeneous, but, together with China, the country leads the commercial deployment of the car's digital layer: proprietary software, data, over-the-air updates and autonomous driving. Among the leading players are Waymo and Tesla in the United States, and Baidu Apollo, Apollo Go and WeRide in China. The IEA identifies robotaxi services already operating in more than 20 cities, primarily in China and the United States. Every kilometre travelled in real-world operation generates data and learning; therefore, competition is measured not only by the number of units produced, but also by the speed at which a company converts software and operational experience into successive improvements[5].

Europe therefore faces double pressure. It must accelerate electrification so as not to lose the volume market, while also preventing the highest-value layer — batteries, operating systems, semiconductors, data and services — from slipping out of its control. The risk is not only manufacturing fewer cars: it is becoming an assembler of technologies developed elsewhere.

Electric car sales share
(% of total vehicle sales)



Source: IEA.

[3] IEA, 'Global EV Outlook 2026' (20 May 2026), chapters 'Executive summary' and 'Manufacturing and trade'.
[4] IEA, 'Global EV Outlook 2026' (20 May 2026), chapters 'Executive summary' and 'Trends in electric cars'.
[5] IEA, 'Global EV Outlook 2026' (20 May 2026), chapter 'Autonomous vehicles'.

Brussels steps on the accelerator: from regulation to industrial policy

The shift in European policy came with the Action Plan on the Future of the Automotive Sector, presented by the Commission in March 2025. Its five pillars — innovation and digitalisation, clean mobility, supply-chain resilience, skills and the social dimension, and a level playing field — reflect a change of approach: the climate transition must also serve to maintain European production and competitiveness[6].

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The plan allocated 1 billion euros from Horizon Europe for the automotive sector between 2025 and 2027, including 350 million euros for next-generation batteries, and announced 570 million euros from the Alternative Fuels Infrastructure Facility for 2025-2026, particularly for heavy-duty vehicles. It also called for at least three large-scale cross-border testbeds with related regulatory sandboxes and automated-driving corridors[7].

The Automotive Package of December 2025 added proposed flexibility and regulatory simplification. Its most visible element would replace the current 100% reduction target for CO_2 emissions from new cars and vans from 2035 with a 90% tailpipe-emissions reduction target, with the remaining 10% compensated through either low-carbon steel made in the Union or sustainable fuels. As of August 2026, the amendment remains a Commission proposal under the ordinary legislative procedure. The package also provides for a 1.8 billion euro Battery Booster, which includes a facility of up to 1.5 billion euros in interest-free loans for European electric-vehicle battery-cell producers — a facility that was formally adopted by the Commission in June 2026. Additionally, it advances clean corporate fleets, regulatory simplification and small electric vehicles[8].

Europe wants this transition to translate into industry, investment and jobs on European soil

The approach extends to raw materials too. The Critical Raw Materials Act sets 2030 benchmarks requiring the EU to reach at least 10% of annual consumption through domestic extraction, 40% through processing and 25% through recycling while limiting dependence on any single third country to 65% for each strategic material. In March 2025, the Commission designated 47 Strategic Projects across 13 EU member states[9].

Europe wants this transition to translate into industry, investment and jobs on European soil.

And from paper to the factory floor

The strategy is already being put into practice.

In December 2025, Volkswagen, through PowerCo, commissioned the Salzgitter gigafactory in Germany and produced the first unified cells 'made in Europe'. The plant has an initial planned production capacity of up to 20 GWh a year, which is equivalent to batteries for about 250,000 electric vehicles. Salzgitter is intended as the blueprint for PowerCo's other cell factories, including the planned Valencia site near Sagunto.

[6] European Commission (5 March 2025), COM(2025) 95 final, pp. 2-3.
[7] European Commission (5 March 2025), COM(2025) 95 final, pp. 4-7 and 13-15.
[8] European Commission (16 December 2025), 'Automotive package'; Proposal COM(2025) 995 and procedure 2025/0420/COD; European Commission (9 June 2026), 'New Battery Booster set to inject 1.5 billion euros into the European battery industry'.
[9] Regulation (EU) 2024/1252, art. 1(2); European Commission (25 March 2025), 'Selected strategic projects under the Critical Raw Materials Act'.

The project symbolises the move from external dependence towards in-house battery production capacity on European soil.

The factory has become one of the symbols of the new European industry: digitally connected and built around a fresh production architecture

Another approach is to convert an existing industrial asset rather than building everything from scratch, as Renault is doing at the Douai plant, which is part of the Ampere ElectriCity industrial hub in northern France. Production of one of Renault's electric models surpassed 100,000 units in 15 months. The same modular line produces six electric models for Renault, Alpine, Nissan and Mitsubishi, while two-thirds of the wider ElectriCity supplier base is located within 300 kilometres. It is a sign of reindustrialisation and of a historic plant's adaptation to the new automotive cycle.

A third model is strategic cooperation without giving up European localisation, as employed by Stellantis through its partnership with CATL in Zaragoza, Spain. In December 2024, the companies announced an investment of up to 4.1 billion euros in a European lithium iron phosphate (LFP) battery plant, with commencement of production targeted for the end of 2026 and a potential capacity of up to 50 GWh. The joint venture began construction in November 2025. The partnership combines Stellantis's industrial scale and vehicle network with battery technology from a Chinese leader, while at the same time placing the factory, employment and part of the production learning process in Europe.

The global network for sixth-generation batteries has been reorganised by BMW, with Debrecen in Hungary becoming the first of five plants worldwide to begin series production of Gen6 high-voltage batteries. The site has also launched series production of one of BMW's electric models, combining vehicle and battery production in the same location. The factory has become one of the symbols of the new European industry: digitally connected and built around a fresh production architecture.

The connected and autonomous car: where the business model changes

The car ceases to be a finished product delivered once and instead becomes a platform that can evolve throughout its useful life

Europe's industrial process is also extending to the connected and autonomous car, which adds a second technological layer to electrification. The concepts should be kept separate: a connected car exchanges information with the outside world — the internet, applications, the manufacturer, other vehicles or infrastructure; an autonomous car, by contrast, can take over part or all of the driving task. Every autonomous car will be connected, but not every connected car is autonomous.

The software-defined vehicle shifts functions that were previously fixed in hardware towards a centralised and updatable architecture. It allows for remote improvements, predictive maintenance, intelligent battery management, fleet services, charging optimisation and new functions after sale. In economic terms, the car ceases to be a finished product delivered once and instead becomes a platform that can evolve throughout its useful life.

The Commission has placed this technological layer at the heart of its strategy. The Action Plan calls for an EU-wide open platform for software-defined vehicles, shared

hardware and software building blocks, and automotive applications of artificial intelligence. The aim is to reduce fragmentation and prevent each manufacturer from rebuilding basic, non-differentiating elements from scratch[10].

EU data rules could also become a competitive advantage

EU data rules could also become a competitive advantage. The Data Act has been in force since 12 September 2025 and gives users greater control over data generated by connected products, including cars. In the automotive sector, this paves the way for maintenance, repair, fleet management, usage-based insurance, smart charging and more transparent second-hand markets, subject to security, privacy and trade-secret safeguards[11].

The battery adds another layer of traceability. From 18 February 2027, electric-vehicle batteries placed on the EU market will require an electronic battery passport accessible through a QR code. The passport must contain information specified in the Batteries Regulation, including battery-model data, carbon-footprint information and data relevant to circularity and performance. This can reduce uncertainty about battery condition, facilitate recycling and second life, and improve the vehicle's residual value. A compliance rule thus becomes an information infrastructure for new markets[12].

European-style autonomy: caution and industrial ambition

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Society of Automotive Engineers International (SAE International), whose classification system has become the global benchmark for vehicle automation, defines six levels of driving automation, from Level 0 to Level 5. At Levels 0, 1 and 2, the human driver performs or supervises the driving task. At Level 3, the automated system performs the entire dynamic driving task within a defined operational design domain, but the user must be ready to respond to a takeover request. At Level 4, the system can operate without human fallback within that domain; Level 5 would cover all conditions in which a human driver could operate[13].

Commercial deployment in Europe remains concentrated in driver-assistance systems alongside specific Level 3 approvals and limited Level 4 pilots. The Commission places connected, cooperative and automated mobility at the centre of the sector's next industrial phase, alongside software-defined vehicles and artificial intelligence[14].

Commission Implementing Regulation (EU) 2022/1426, as amended in 2026, establishes uniform procedures and technical specifications for EU type approval of automated driving systems in fully automated vehicles. It requires the operational design domain and safety concept to be defined, risks and failures to be managed, cybersecurity evidence to be provided and in-use data to be reported to type-approval

[10] European Commission, COM(2025) 95 final, 5 March 2025, pp. 3-5.
[11] European Commission, 'Data Act explained' and 'Guidance on vehicle data, accompanying the Data Act'; Regulation (EU) 2023/2854.
[12] Regulation (EU) 2023/1542, arts. 77 and 96 and Annex XIII.
[13] SAE International, SAE J3016_202104, 'Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles'.
[14] European Commission, COM(2025) 95 final, 5 March 2025, pp. 3-7.

authorities. Common EU approval can reduce the need for each company to negotiate a separate technical framework in every member state[15].

The first profitable market may not be the universal private car

Mercedes-Benz showed that Level 3 can reach the market: DRIVE PILOT was approved in Germany for conditionally automated operation at up to 95 km/h under specified motorway conditions. The 2026 S-Class, however, was launched with MB.DRIVE ASSIST as standard and MB.DRIVE ASSIST PRO in selected markets, illustrating that a Level 3 approval does not translate into uniform deployment across every model, configuration and jurisdiction[16].

This brings us to the point that the first profitable market may not be the universal private car. The nearest use cases are services within defined environments: on-demand public transport, first- and last-mile shuttles, ports, airports, industrial campuses, automated parking and logistics corridors. In these settings, the operator controls routes, maintenance, maps or remote supervision, making economic value easier to measure.

Madrid has announced the deployment of robotaxis by Uber, WeRide and AVOMO, with public operations expected to begin later in 2026. In Hamburg, MOIA embarked on its ALIKE autonomous ridepooling passenger test with selected pre-registered users on 15 July 2026. In Munich, MOIA is testing autonomous vehicles on public roads and a dedicated test track, with complex traffic and emergency scenarios among those being evaluated[17].

The opportunity is for Europe to move from pilots to repeatable, multi-city deployments that allow it to accumulate kilometres, data and operational experience without lowering safety requirements

The European Connected and Autonomous Vehicle Alliance (ECAVA) launched in October 2025 and held its first international forum in Brussels on 23-24 June 2026. Separately, on 8 June 2026, 18 member states signed a declaration supporting large-scale cross-border testbeds, in which emphasis was placed on public transport, freight and logistics, interoperability and coordinated approval procedures. Europe now has the opportunity to move from pilots to repeatable, multi-city deployments that allow it to accumulate kilometres, data and operational experience without lowering safety requirements[18].

Competing with China without copying China

International competition is proving a spur for European industry. China continues to set the pace of the market and product offering. The IEA notes that China is the only major market in which available electric-car models outnumber conventional models, and that Chinese automakers supplied 60% of global electric-car sales in 2025. China's position reflects not only subsidies but also model variety, integrated supply chains, intense competition and falling battery costs[19].

[15] Commission Implementing Regulation (EU) 2022/1426, as amended by Commission Implementing Regulation (EU) 2026/481.
[16] Mercedes-Benz Group (2024), 'Mercedes-Benz increases top speed of its Level 3 automated driving system to 95 km/h'; Mercedes-Benz Media (29 January 2026), 'The new S-Class: Refined in every detail'.
[17] Uber (2 June 2026), 'WeRide, Uber, and AVOMO bring Robotaxis to Madrid'; MOIA (15 July 2026), 'Passenger test operation launches in Hamburg'; and MOIA, 'Testing for tomorrow, enhancing safety today'.
[18] European Commission, ECAVA and First International ECAVA Forum (8 June 2026), 'Cross-border initiative for autonomous vehicle testbeds'.
[19] IEA (20 May 2026), 'Global EV Outlook 2026': chapters 'Trends in electric cars' and 'Executive summary'.

The European model can be different. Its first component would be safety and common type approval: a vehicle authorised under rigorous rules can access a continental market. The second would be circularity, with requirements for footprint, recycling and the battery passport. The third would be data and software interoperability. The fourth would be strategic openness, allowing alliances with non-European technology providers while making market access conditional on investment, traceability and fair competition. The fifth would be the density of suppliers and plants capable of turning those rules into high-quality products.

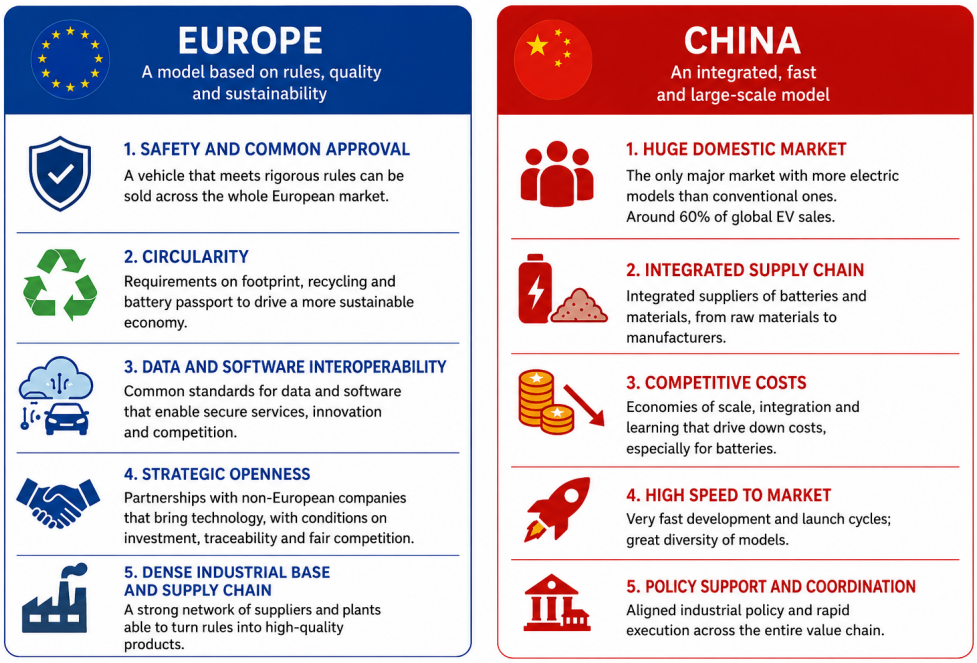
Regulation becomes competitive when it ceases to be a list of national obligations and becomes a common architecture for scaling up

This combination could work as a competitive advantage if it reduces costs and generates trust. Fragmented regulation slows things down; a single European rule can speed things up. An isolated traceability requirement raises costs; an interoperable digital passport can create value in financing, maintenance, resale and recycling. A safety standard that is too slow can delay the market; one that is clear and predictable can facilitate public procurement and social acceptance. Regulation becomes competitive when it ceases to be a list of national obligations and becomes a common architecture for scaling up.

The greatest risk is execution. The industry continues to suffer from high energy costs, weak demand in some markets, national differences in incentives and charging, difficulties in producing affordable electric vehicles, software delays and the failure of some European battery projects to meet their plans. Industrial policy cannot replace commercial discipline: it needs factories in operation, products consumers want to buy and technological platforms capable of being updated quickly.

Europe has a single market of roughly 450 million consumers, global brands, advanced engineering, specialised suppliers, common rules and an institutional capacity to set standards that often influence markets beyond its borders[20].

[20] European Commission (21 May 2025), 'Bringing down barriers to the single market to create opportunities for all'.



2027: the year of execution

The strategy already exists. The question now is whether Europe can turn scattered projects into a recognisable and scalable industrial trajectory next year. These are the objectives to be achieved in 2027:

- Affordability. The transition will not be consolidated if electric vehicles remain concentrated in the upper segments. The new generation of European compact cars, the expansion of LFP batteries and the proposal to establish a regulatory category for small cars can reduce price and weight. But demand needs stable signals: predictable taxation, available charging and corporate fleet policies that create volume without relying on intermittent subsidies.

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- Exploitation of industrial capacity. Salzgitter, Douai and Zaragoza should be understood as nodes in a network, not as exceptions. The Commission and member states will have to accelerate permits, electricity connections, access to competitive energy, recycling and raw materials projects. Industrial policy will only be credible when plants achieve volume, productivity and costs that are compatible with the market.

- Reduction of the software gap. Europe needs common components, zonal architectures, reliable over-the-air updates and talent in artificial intelligence and cybersecurity. Sharing non-differentiating layers can free up resources for what truly distinguishes each brand. Collaboration between manufacturers, suppliers and technology companies will be as important as investment in factories.

- Conversion of autonomous testbeds into markets. Public procurement and transport operators can create the first cases of scale: defined routes, high utilisation,

professional supervision and measurable benefits. If each city designs a different regime, Europe will accumulate pilots. If it shares type approval, data and operating procedures, it will be able to build an exportable platform.

Europe does not need to win every stage of the race. It does need to retain and expand a decisive share of value

- Regulatory coherence. Flexibility must not mean permanent uncertainty. Manufacturers invest over long horizons; they need to know which technologies, fuels, materials and credits will be in play in 2030 and 2035. The review of the CO_2 framework may be a more pragmatic step, but it will only help competitiveness if it is resolved quickly and maintains a clear signal towards low-carbon investment.

Europe does not need to win every stage of the race. It does need to retain and expand a decisive share of value: batteries, electronics, software, data, services and integration capacity. The first kilometres have already been covered. The competitive advantage will emerge if the continent manages to do something its industry knows well: turn a demanding standard into a reliable, manufacturable and desirable product at scale.

Conclusion

Europe's response is no longer limited to setting climate targets. It is beginning to take material shape in cells produced in Salzgitter, multi-model lines in Douai, an LFP plant under construction in Zaragoza, common rules for data and the first controlled autonomous services. The EU's opportunity lies in turning safety, traceability and the single market into an industrial platform capable of competing with China's scale and the technological speed of the United States, without copying either model but instead building a third competitive model based on industrial capacity, common rules, strategic openness and safe deployments.