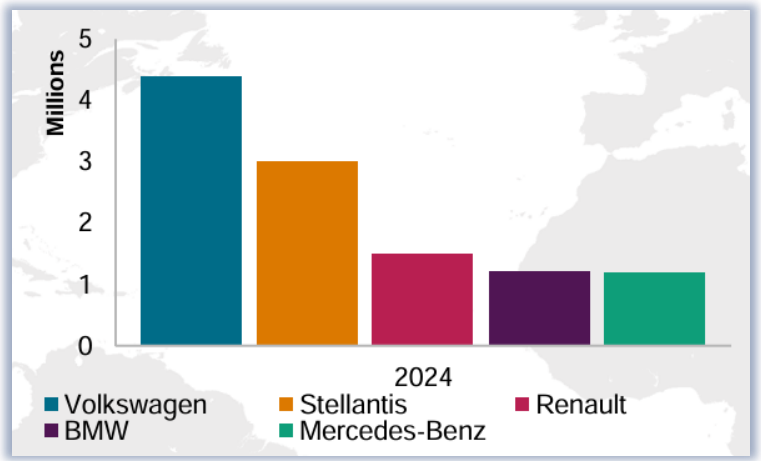
Trends in Main Markets

Car production – 92 million vehicles produced in 2025 with a forecast of 98 million in 2030.

Europe

Production: 14.5 million vehicles.



In Europe, new models will need to be developed in similarly short timeframes as in China. Engineering costs must be reduced through stronger relationships OEM-Supplier, AI tools, and offshoring, to significantly lower workloads, including the number of prototypes. The industry must urgently organize itself in key technology areas. Global suppliers need to innovate more in partnership with Chinese manufacturers to stay competitive. A specific European business model should be considered, from financing to sales, manufacturing, and recycling.

Innovation and safety leadership

Europe remains a global leader in lighting innovation, driven primarily by German automakers – particularly in adaptive, safety-focused, and design-integrated solutions. The European region continues to set benchmarks in regulatory compliance and advanced technologies such as matrix lighting, ADB, and projection systems.

Competition and overcrowding

The European automotive market faces intense competition and structural overcapacity, now exacerbated by the rise of Chinese EV brands entering the region. The shift to electric mobility brings added pressure on cost, weight, and energy efficiency of lighting systems.

Tier-1 suppliers landscape

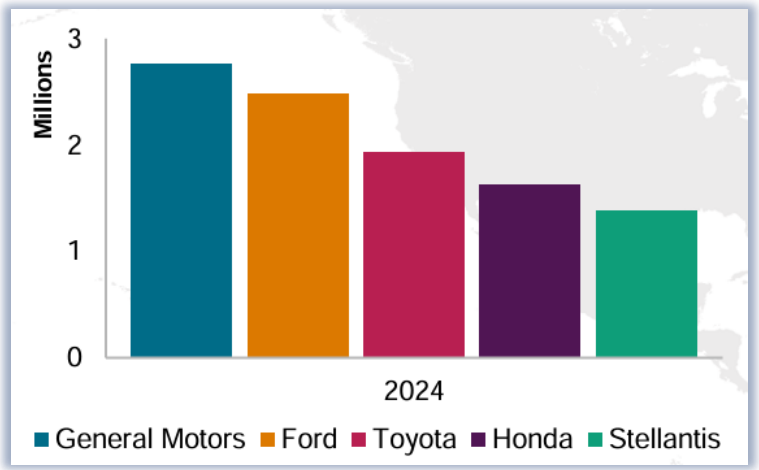
Among the world's top-5 lighting suppliers, three dominate the market: Valeo, Forvia Hella, and Marelli AL. Two non-dominant but significant and important European lighting suppliers are ZKW and OP Mobility. Chinese tier-1s such as XingYu have entered Europe with local manufacturing but must still prove long-term reliability and integration capabilities in the region.

Europe manufacturing and cost trends

Tier-1s in Europe have diverse industrial footprints, shaped by their history and legacy-automaker ties. The trend is clearly toward relocating production to low-cost countries (Eastern Europe, North Africa, India) to remain competitive while managing rising pressure on cost and speed to market.

North America

Production: 16 million vehicles (USA: 10.5m, Mexico: 4m, Canada: 1.5m)



GM and Ford are setting trends in North America with new EV brands like Lucid and Rivian. Lighting in this market tends toward cheaper and less complex design versus Europe, Japan/Korea, and China. Customers need to be educated because they do not know the benefits of the technology. Tesla has been offering ADB on all their US cars for a short while so far. But the US ADB regulation is problematic, and the self-certification process in USA is a challenge; OEMs do not want to take risks.

Lagging technology

NA is generally a follower in lighting innovation compared to Europe and Asia. ADB, for example, is only beginning to be introduced on the US market by Tesla and Rivian, with only a relatively basic segment matrix design, despite being available on numerous brands and models and with much more advanced technologies in Europe and elsewhere for over 20 years. American end-users don't yet know the benefit of ADB, and must be educated.

Higher margins, less competition

The North American market features larger lighting systems (on larger vehicles) and less intense competition among tier-1 suppliers, which supports fatter profit margins. Technical performance is often secondary to cost, styling, and branding.

Tier-1 supplier landscape

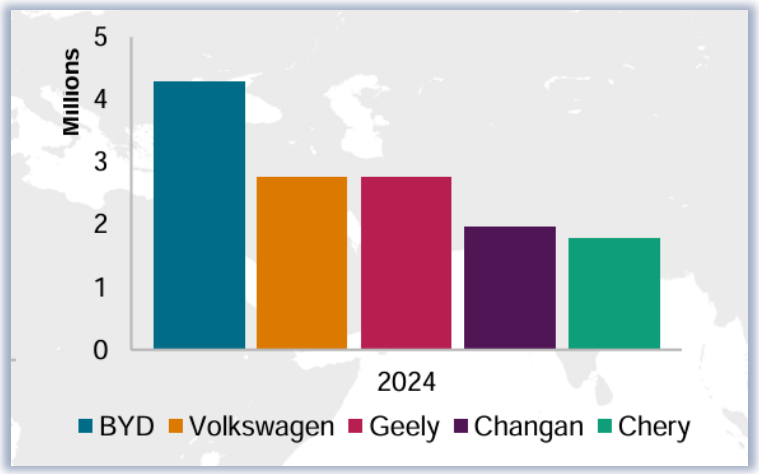
Suppliers based in Europe (Valeo, Hella, Marelli), Japanese (Koito + NAL, Stanley), and Korea (SL, Hyundai Mobis) dominate the market. The dominance of global players leads to a consolidated supply chain. Local tier-1 competition is relatively limited, yet still significant: Flex-N-Gate, Magna, JW Speaker, Luxit, Peterson, Grote, and Diode Dynamics.

Mexico as strategic manufacturing hub

A significant share of production is located in Mexico, offering lower labor costs while maintaining proximity to US vehicle factories. This regional integration supports cost-efficiency and shortens supply chain lead times for North American vehicle production. However, it is not yet clear whether, when, or how stability and predictability might return after the sharply increased cross-border charges instigated by the present US administration's high and unpredictably changing tariffs.

China

Production: 31 million vehicles



The production of the five groups above represents one-third of China. Other cars are produced by around 150 brands. Studies consider that 5 to 7 Chinese groups will survive beyond 2030.

Chinese car buyers are much younger; the average Chinese car buyer is a bit over 30 years old. This demographic's priorities fuel innovation; they want to be surprised and delighted their wants and needs are not the same as in Western markets.

Lighting is a strong lever in China to show that one has spent money on the latest product, including decorative lighting seen as much too gimmicky in Japan or Europe. The Chinese market will surely evolve and mature; it is just a question of time, just as Americans in a similar stage of consumerism decades ago eventually stopped showing off with higher-and-higher tailfins and enormous amounts of chrome.

What will continue are the real features that are functional and improve safety.

Chinese companies have advantages, including lower development and production costs; no tradition of consumers expecting a long or trouble-free service life from products they buy, and many companies are new enough to have only an electronic legacy rather than a mechanical one.

Meanwhile, regulations tend to authorize new technologies and applications without long discussion, allowing automakers and suppliers to develop their innovations in real-world field tests.

Tier-1 supplier landscape

Woldwide suppliers as Koito, Valeo, Hella, Marelli AL are now overtaken by Chinese suppliers such as Hasco, Xingyu, Fudi and Mind (subsidiary of BYD and GWM).which represent half of the 12b€ Chinese market in China.

China is the most competitive EV market in the world. It features intense price wars, rapid innovation, numerous new entrants, and consumer appetite for short innovation cycles. This environment has driven remarkable advances in technology and cost efficiency. Of the more than 100 brands currently selling electric and plug-in hybrid vehicles in China, ten Chinese car manufacturers will prevail and emerge stronger through their domestic volumes and focus on technology.

China's assembly lines can produce 54 million cars annually, almost double the 31 million the factories produced last year.

China

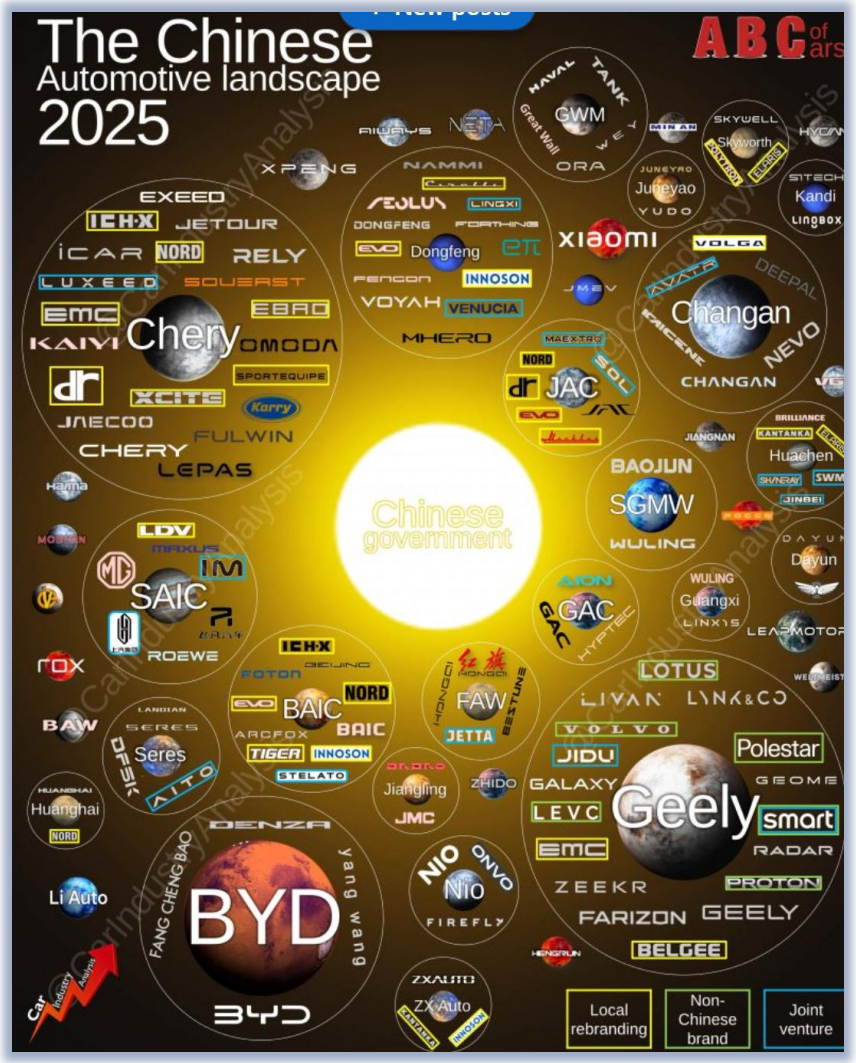
Global leadership in market size and EV uptake

China has long been the world's largest automotive market and is now the global leader in EV production and adoption. This dominance extends to lighting, where the EV boom fuels rapid innovation and adoption of new technologies.

Long a follower in lighting, China is now emerging as an innovation hub in design, digital content, and user experience. Aggressive innovation in lighting is driven by local EV brands experimenting with bold lighting design.

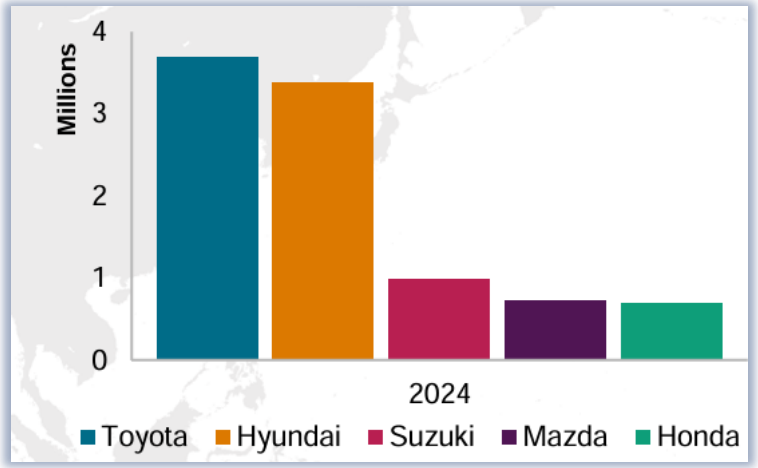
The major trend is to keep focus on mega-cities, signaling and interactions, Interactive Social Displays and more in general V2X communication.

Chinese fighting function development expresses the hidden 'intelligence' and capabilities of the car. Examples include welcome and farewell sequences, show room modes, and selectable lighting signatures. The more fun you have from your lamp, the more intelligent the car seems to be. That is why ISD, road projection, signalling projection, and videos from lamps are so important in China. Interaction between driver and its vehicle has number one importance.



Japan & Korea

Production: 9 million vehicles in Japan / 4 million vehicles in Korea



In Japan, the current market is challenging, as Japanese automakers face competition on EVs in China. Japanese makers need to allocate resources for the EV shift, which will reduce the budget for lighting and entertainment. Japanese automakers request simple designs, and simplification for the subsequent designs, and still ask for differentiation like thinner headlamps and DRL signatures.

But they do not want exterior displays or complex shapes.

Japan's automotive supply chain has always been a key pillar for the Japanese automotive market. And Japan is competitive. Tier-1s and OEMs are very focused on supply chain.

Japan has a very good relationship with India and its automotive ecosystem, and India has very good potential on this front; examples include Tata AutoComp / Ichikoh Partnering for Indian lighting business, and the longtime partnership between Japan's Stanley and India's Lumax.

In Korea, the Hyundai Kia Motor Group, the top-3 worldwide, dominates the market, with a 93% share. More than two million vehicles produced in Korea are exported to other countries.

Balanced innovation

Lighting innovation in Japan and Korea sits between Europe's performance focus and China's experience-driven approach. Advanced lighting (ADB, matrix systems…) was introduced in parallel with Europe, but is typically implemented in a simpler, less expensive way, reflecting a strong value-engineering culture.

Tier-1 supplier landscape

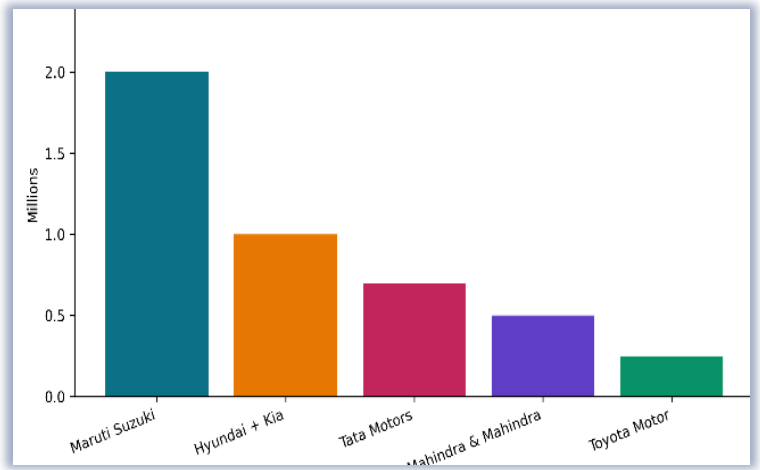
Japan's tier-1 market is dominated by domestic players: Koito, Stanley, and Ichikoh (with Valeo) are the key leaders. Foreign tier-1s have no local presence. Koito plans to open a new factory in Japan in 2027 – a highly efficient one using digital technology, aimed at contributing to the realization of carbon neutrality.

Korea shows a similar pattern; local lighting is controlled by local suppliers Mobis and SL, with refined in-house development by OEMs. Foreign partnerships exist but are limited and strategic, typically when Korean automakers seek specific technology like high-resolution ADB or DLP.

Both markets have limited foreign tier-1 presence, with high entry barriers for non-domestic suppliers. Relationships and long-term integration with domestic OEMs play a crucial role in supplier selection.

India

Production: around 5 million vehicles



The automotive industry in India in 2025 is the world's fourth-largest production area behind China, North America, and Japan.

The Indian automotive ecosystem has, over the decades, developed a reputation for cost efficiencies and design competitiveness.

Market share

The Indian growth is based on an increasingly competent and competitive value chain of skilled manpower, a globally relevant regulatory environment, and cost efficiencies reached over time. More than half of the revenue of passenger vehicles came from mid-and-full-size SUVs.

Maruti Suzuki is the leader with 40% of the market share. Hyundai/Kia is the second-largest manufacturer with a market share of 20%. Tata with 13%, Mahindra & Mahindra with 11%, and Toyota with 5%, follow.

Mobility solutions

Expectations from mobility solutions have undergone significant changes over the past decades – shared and green(er) mobility options are finding traction.

EV production is expected to continue to ramp up through 2030 with a potential of 25% to 40% of electrified passenger cars in 2030; this will require the ecosystem to ramp up domestic R&D, manufacturing & value-add.

Supplier Tier-1 landscape

Lumax Industries, Uno Minda, Varroc Lighting Systems, , Indian Japan Lighting, Forvia Hella, Neolote,ZKW, Fiem Industries share the market.

Two-wheelers market

Production is around 20 million. Hero has around 32% market share and has ICE-dominated portfolio while Ola has the highest market of 20% in E2W market and produces electric vehicles only.

Three-wheeler market

Production is dominated by Bajaj Auto with 4 times market share as compared to it's nearest competitor Piaggio.

Presence of over 400 local and global players with limited sales.

Organisations

ARAI, providing the industry with expertise in R&D, testing, certification, regulation.

ACMA, representing the interest of the Indian Auto Component Industry.

ELCOMA, representing the entire lighting industry in India.

ISoL, International Symposium of Lighting, a lighting congress every 2 years.

A2S Consulting is an independent consulting firm with a deep knowledge and experience of the Global Automotive market.

We focus on 3 support activities:

1. **Business Development**
   - Leveraging contacts with OEMs (Audi, BMW, Mercedes-Benz, Renault, Stellantis, VW...) and long-established relationships with the main lighting Tier Ones: Hella, Marelli AL, OP Mobility, Valeo, ZKW.
2. **Strategy**
   - Team of former CEOs, CFO, CTOs with Global Tier Ones (FORVIA, Valeo, …)
3. **M&A and Partnerships**
   - Knowledge of the worldwide lighting market

We offer you:

1. **Proven Expertise in the automotive lighting industry**
   - Comprehensive understanding of the lighting ecosystem
2. **Hands-on Experience**
   - Large automotive experience in strategy execution, industrial footprint, and engineering transformation, Joint venture, partnership, and turnaround
3. **Market Knowledge and Data Access thanks to:**
   - Strong link with DVN
   - Worldwide presence in universities, institutional organization, and regulations through a Network of specialists and the experience at DVN

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