Center of Automotive Management (CAM) | Bergisch Gladbach

AutomotiveINNOVATIONS Report 2025

The innovative strength of global automobile manufacturers

Working Paper 9/2025 by Center of Automotive Management (CAM)

The **Innovation Report 2025** by **CAM** provides a comprehensive analysis of vehicle **innovations** from global automobile **manufacturers**. From defining and assessing relevant innovations to examining major automotive groups and **startups**, and categorizing them by key **technology fields** – the report offers deep insights into innovation **dynamics** and future **viability**. Additionally, it presents which manufacturers were ranked most **innovative** in the 2025 award and highlights the specific **innovations** underpinning these positions. ***Beyond this, the report develops forward-looking projections to evaluate future dynamics and competitive positioning***.

1 **Survey and Analysis**
Annual review of innovations from around 30 global manufacturers and startups, giving a detailed picture of new technology trends.

2 **Qualification**
Evaluation of each innovation regarding technical novelty, maturity, and customer benefits, distinguishing major advances from small improvements.

3 **Identification of Trends**
Detection of key industry trends across technology fields and insights into the focus areas of different manufacturers.

4 **Comparative Evaluation**
Systematic comparison of innovation strength among manufacturers and brands, also including country-level perspectives. **In addition, we develop forward-looking projections to assess future innovation dynamics and competitive positioning in global automotive markets.**

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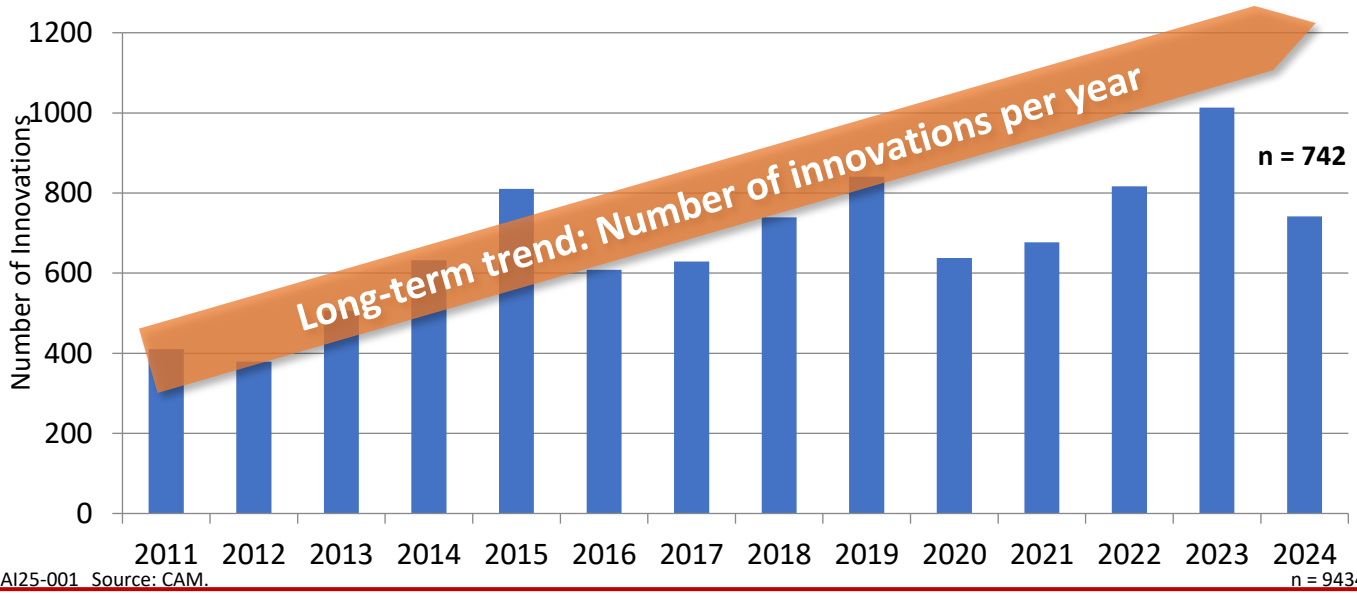
Innovation Trends

Number of innovations by year 2011 to 2024

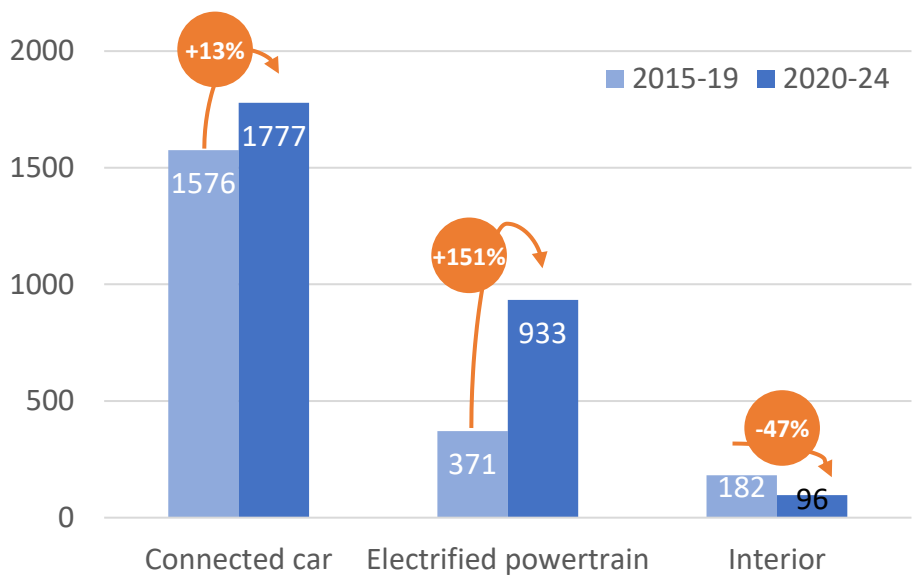
Over the past decade, the number of automotive innovations has shown a steady upward trend, peaking in 2023 with over 1,000 new developments. Despite fluctuations in individual years, the long-term trajectory highlights the industry's dynamic transformation, reaching 742 innovations in 2024 and underlining sustained technological progress.



AI25-001 Source: CAM. n = 9434

Number of innovations in series 2015 to 2019 and 2020 to 2024 in comparison*

Recent years show strong growth in automotive innovations, driven by electrified powertrains and connected car technologies. While interior-related innovations declined, the overall dynamic highlights how the industry focuses on electric mobility, digital connectivity, and efficiency – reflecting shifting priorities in the global transformation.



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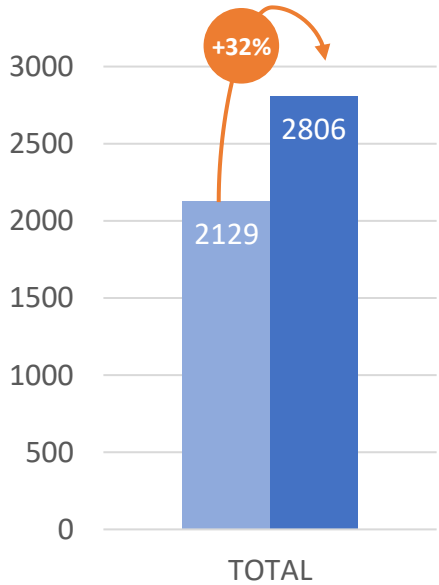
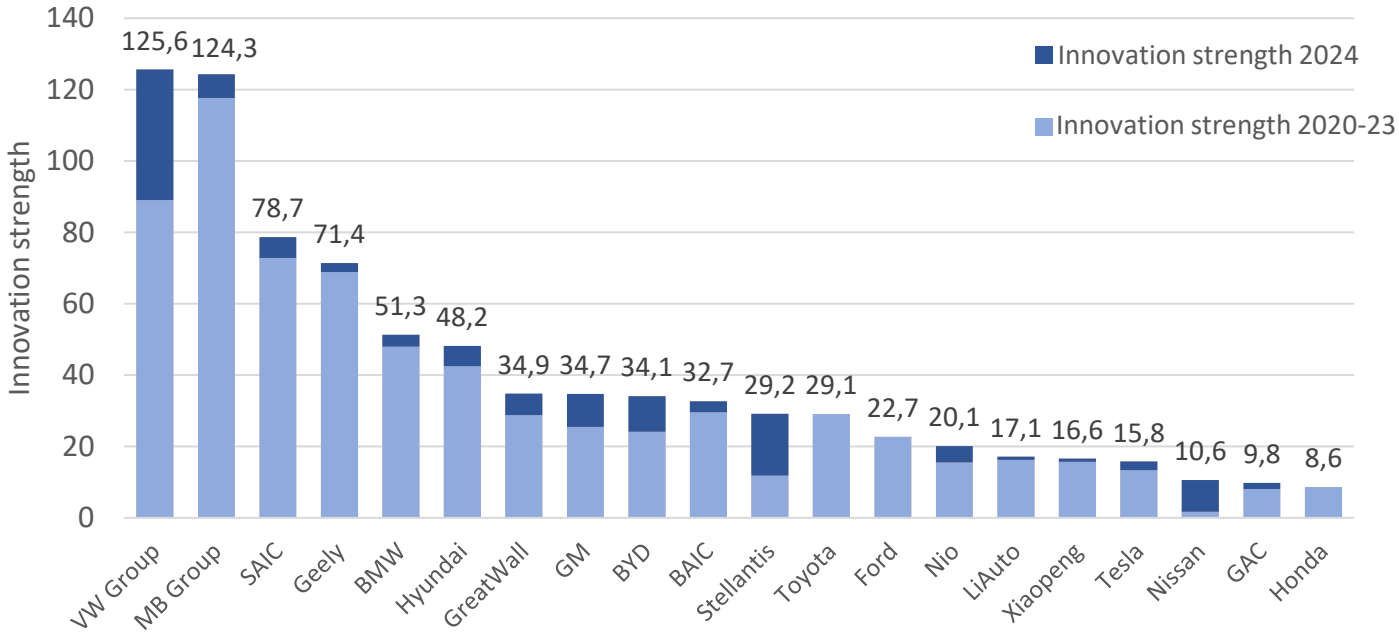


Grafik AI24-007a Source: CAM

Connected Car Series Innovation Strength "Interfaces*" 2020-24 (Top 20 OEMs)

In the individual analysis, two German car manufacturers, Volkswagen and Mercedes, are still leading in interfaces, followed by the Chinese suppliers SAIC and Geely, which have grown massively since the 2020s.

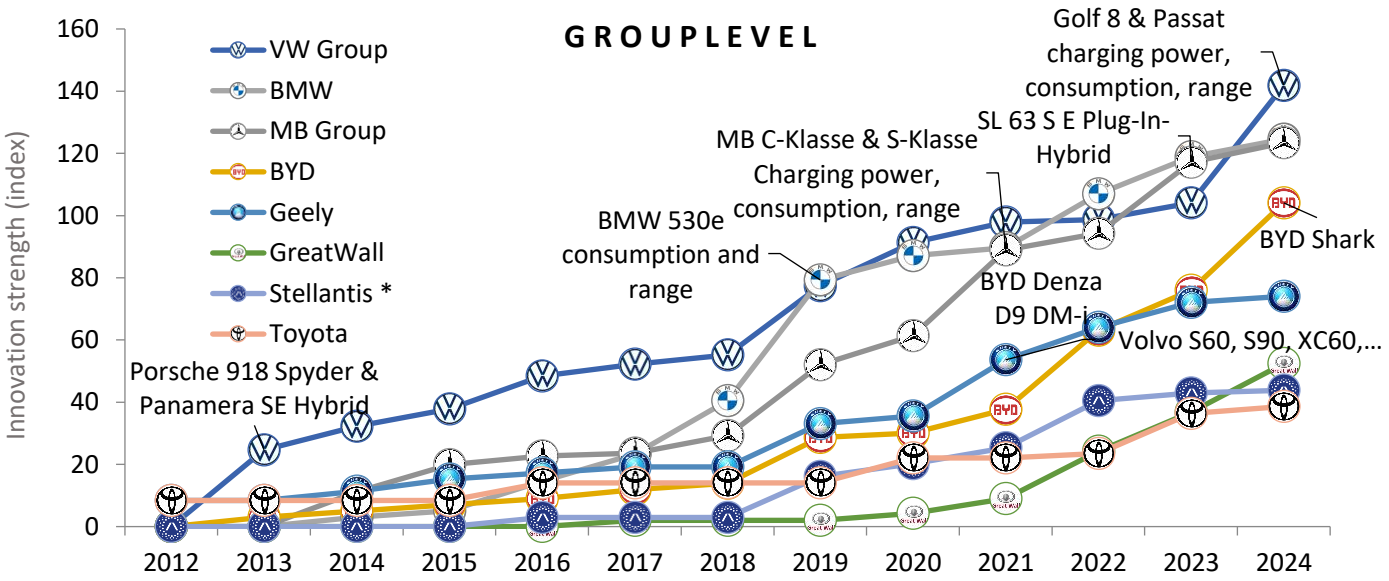


* Technology field: Operating & display concepts, BAK.

Source CAM. Grafik CCI015

Automotive Groups by PHEV Innovation Strength | 2012-2024

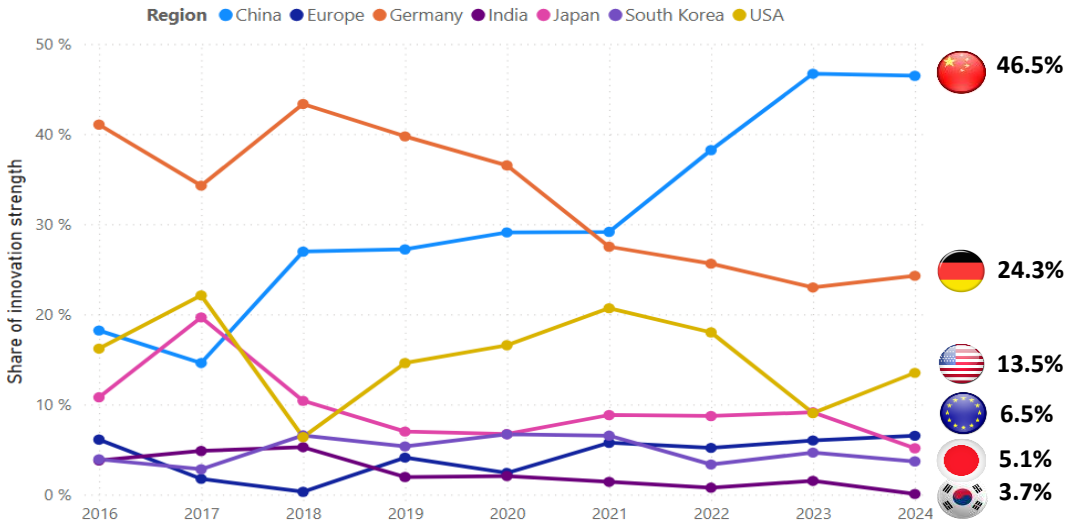
Plug-in hybrids shape the transition to electromobility: German manufacturers such as VW, BMW and Mercedes dominate, while BYD, Geely and Great Wall are catching up. Innovations like efficient pickups, luxury-range improvements and SUVs with more than 200 km CLTC range boost competition and sustainably drive global market development forward.



G171 Source: CAM Annot.: Innovations of technology field PHEV (A-HY-PI), Innovations in series only, company-first and

Share of series innovation strength by countries/regions* 2016–2024** (in %)

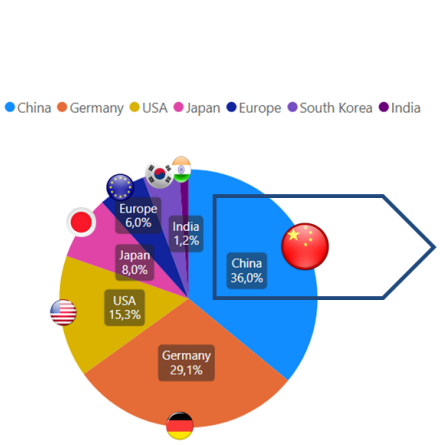
China secures 46.5% innovation share in 2024, driven by heavy investment in electromobility and digitalization. Germany stabilizes around 25% after years of decline, while U.S. OEMs recover to 13.5%. Japan drops to 5%, and Europe outside Germany holds 6.5%, as traditional markets fall behind emerging innovation leaders



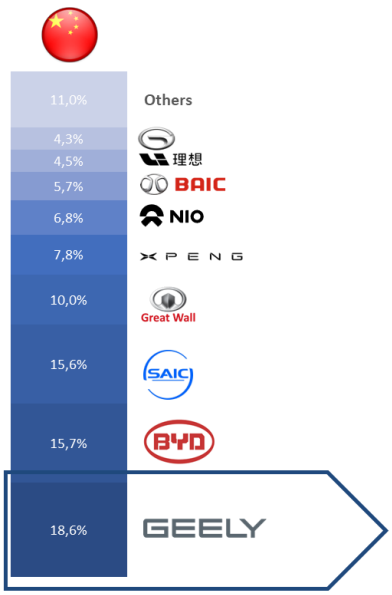
Source: CAM. Grafik PBI-8 OEMReg.

Share of innovation strength by Chinese manufacturers 2019-2024 / analysis of innovation strength of Geely by technology fields (group level)

China leads global automotive innovation with 36% share, driven strongly by Geely's 18.6%. A drillthrough analysis highlights Geely's strengths: 40% Electric Drive & EV ecosystem, 35% connectivity, 13% ADAS, and 12% hybrid. Concrete innovations—Geely Galaxy E8, Volvo EX90, Lynk&Co 09 EM-P, Zeekr 7X—illustrate its competitive edge.



Source: CAM. Grafik PBI-8 OEMReg.



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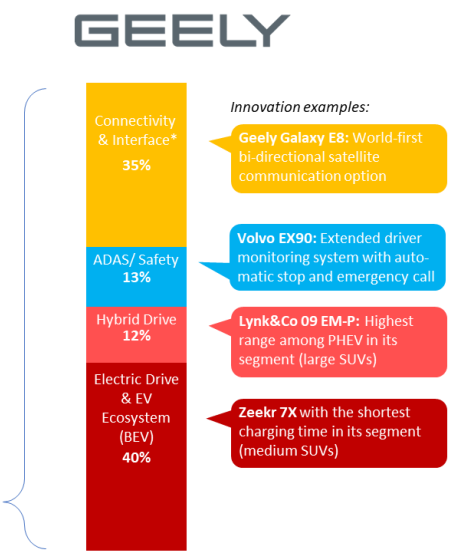


Grafik AI25-023 Source: CAM

* Technology fields: interface (BAK), information and communication systems (IK), interior (INT).

Cumulative BEV innovation strength of global automakers | Data 2012-2024

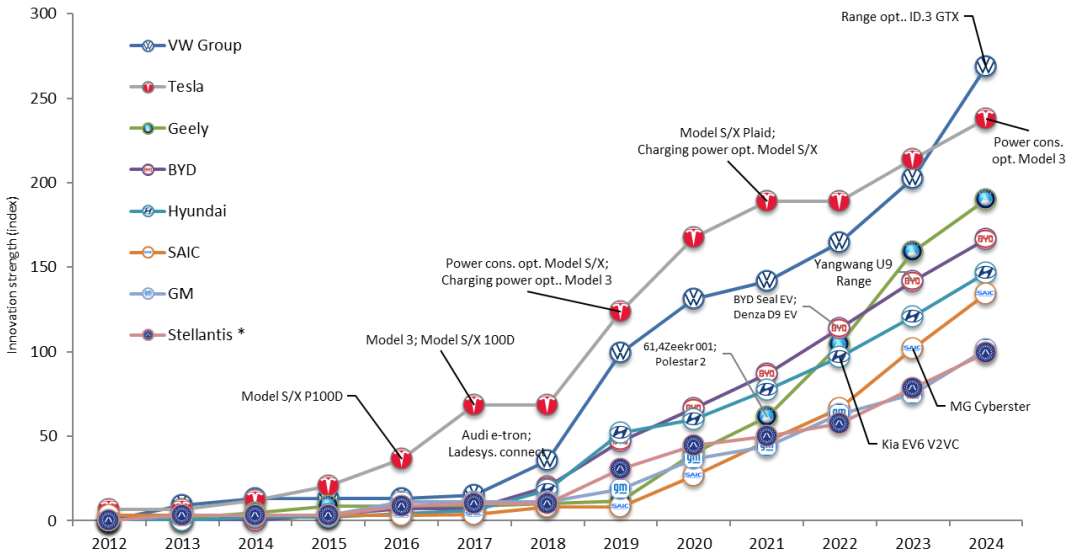
Volkswagen Group overtakes Tesla as global BEV innovation leader, widening the gap to 30 index points. Geely strengthens its 3rd position with Zeekr 7X ultra-fast charging and Lotus Emeya luxury EV. BYD advances with YangWang U9 and Dolphin. Mercedes drops to 9th, while SAIC secures China's top-10 presence.

Rank	Previous Year	OEM (GROUP LEVEL)	Innovation Strength Total*	Innovation Strength Performance 2024	Classification
1	2	VW Group	**268,7**	66,2	Top Innovator
2	1	Tesla	**237,8**	23,8	Fast Follower
3	3	Geely	**189,9**	30,9	Fast Follower
4	4	BYD	**166,6**	25,0	Fast Follower
5	5	Hyundai	**146,8**	26,1	Follower
6	6	SAIC	**134,3**	32,6	Follower
7	10	GM	**101,2**	26,2	Follower
8	9	Stellantis	**99,2**	20,7	Follower
9	7	MB Group	**97,2**	10,5	Follower
10	11	Renault	**94,9**	25,1	Follower
11	8	BMW	**94,1**	10,5	Follower
12	22	Nio	**54,2**	34,5	Newcomer
13	12	BAIC	**50,9**	3,2	Laggard
14	18	Lucid	**44,3**	17,9	Newcomer
15	14	Ford	**43,6**	11,9	Laggard

Source: CAM. Note: * Cumulative innovation strength of the OEMs considered here (series, 2012-2024).

Top Automotive Manufacturers by Fully Electric Innovation Power (BEV) | 2012-2024**

Tesla maintained BEV innovation leadership for years through Model S/X/3/Y and constant updates. Yet competition accelerates: Volkswagen Group rises strongly with Taycan and ID series, overtaking Tesla in 2024. Chinese automakers Geely, BYD, and SAIC also expand their innovation strength, with BYD leading BEV innovation momentum since 2018.



G176 Source: CAM Annot.: Innovations of technology field BEV (A-EL), from 2024 on incl. BEV-Services (A-EVE). Innovations in series only, company-first and world-first innovations only.

From Report to Award: The AutomotiveINNOVATIONS Study & Data as the Foundation of the 2025 Awards!

The **AutomotiveINNOVATIONS Award 2025** marks the recognition of the most innovative global automotive manufacturers based on more than 575 evaluated series innovations. The **Volkswagen Group** leads the ranking as overall innovation champion, followed by **BYD, SAIC and Geely**. This year's results underline both the strength of Chinese automakers and the renewed innovative momentum of German manufacturers. The symbolic presentation of the trophies illustrates the significance of innovation leadership and the 20-year tradition of the CAM in systematically analyzing and honoring the innovative power of the global automotive industry.

AutomotiveINNOVATIONS Award 2025 Volkswagen Group

AutomotiveINNOVATIONS Pioneer Award 2025 – Mercedes-Benz Group

AutomotiveINNOVATIONS - Xpeng

About the CAM:

The Center of Automotive Management (CAM) is an independent research institute for empirical automotive and mobility studies, as well as strategic consulting, located at the University of Applied Sciences for Business (FHDW) in Bergisch Gladbach, Germany. The institute supports its clients with extensive databases, particularly focused on vehicle technological innovations within the global automotive industry, as well as the market and financial performance of automobile manufacturers and suppliers. Using profound industry knowledge and intimate market insights, CAM develops customized market research concepts and practical solutions for clients in the automotive and mobility sectors.

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