Thu, 24 October 2024
Weekly Newsletter

DVN
Interior

NEWSLETTER #233

Editorial

Surrounded By The Paris Motor Show

The Paris Motor Show—Mondial—finished last Sunday with a new momentum. Many more automakers were doing their best show 'n' tell compared to the previous show, including German ones (VW, Audi, BMW); American ones (Cadillac, Ford), and Chinese ones, some of them brand-new, including Forthing, Aito, and Skyworth. This week's newsletter is fully dedicated to this exhibition; we're taking an in-depth look at selected cars we saw, with particular emphasis on interior matters.

Overall, interiors are being executed with CMF perspective in mind. Softer surface are more common on upper doors and under the dashboard beltline. But sustainability is not really visible, unless it is explicitly mentioned in literature.

Displays are getting wider, but it seems we are reaching a plateau, and that pillar-to-pillar displays will not become universal or ubiquitous. Smaller displays seem to be more popular, close to the windshield and more aligned with the driver's field of view.

The Paris Summit reflects the strategic questions facing the industry. Big questions like, should electrification the only solution? If so, by when? Is there a place for alternative powertrain technologies like hydrogen, e-fuels, and biofuels? Renault, BMW, and Stellantis shared their views, together with Valeo and big ecosystem participants like Orange and TotalEnergies.

The grand DVN Interior Workshop at Torino ended yesterday, and we'll tell you all about it next week.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

DVN-I at the 90th(!) Paris Mondial

PARIS MONDIAL IMAGE

It all began when the automobile had only just been invented. The Exposition Internationale d'Automobiles, held at the Jardin des Tuileries in Paris in 1898, was the very first event in the world devoted to this new mode of transport.

The Mondial de l'Automobile 2024 in Paris last week showcased the latest innovations and models in the automotive industry. The Renault Group and Stellantis brands Citroën and Peugeot launched new models. BMW, Audi and VW showed their latest work. Chinese automakers including BYD, GAC, Hongqi, and others had significant presence.

So let's take a look at selected highlights! All Images are DVN images, unless otherwise declared.

Renault

RENAULT IMAGE

With seven world premiere and two concept cars the Renault Group continues their progress to technological and ecological transformation.

The Renault **Emblème** demo car reflects the company's vision of a car for low-carbon mobility. It was developed to maximise decarbonization through its whole life cycle. It is a family car designed to slash CO_2 emissions (and equivalents) from cradle to grave by 90 per cent, compared with an equivalent vehicle today. It is a kind of shooting brake, 4.80 metres long. Its design is fluid, refined, even minimalist, with technological details reaffirming Renault's ambition to continue innovating in the C segment and higher. The interior has not yet been presented, though at least from outside it looks like it would be pretty roomy.

R17 Restomod × Ora Ïto show car

RENAULT IMAGE

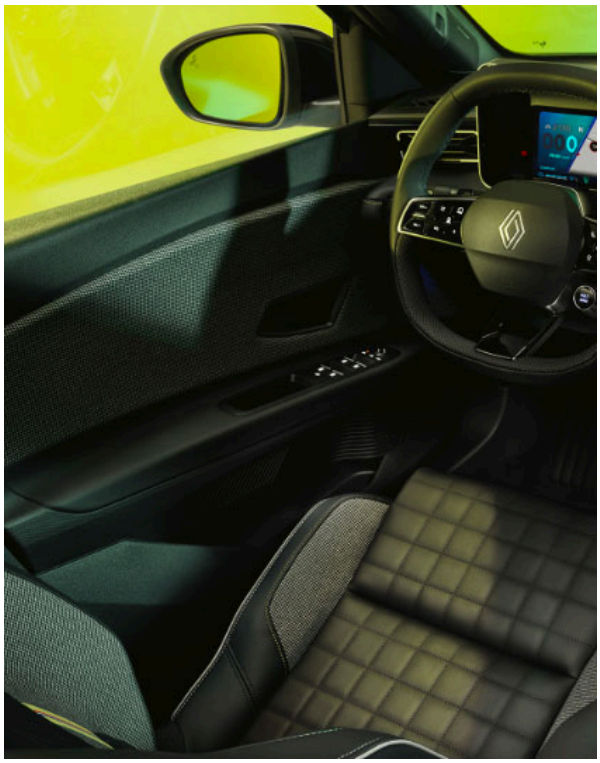
Renault presented their one-off restomod R17, developed in collaboration with French designer Ora Ïto. It is a sculptural remake of the iconic Renault 17 sports coupé launched in 1971.

The R17 boasted all the interior features of a true tourer: a particular driving position, comfortable seats, a full range of equipment, and meticulous finish. The restomod version maintains the original standards of comfort, while making changes to the dashboard and center console. The seats have been redesigned around the original 'petal' structure, with new upholstery inspired by the world of interior design: heathered satin in fine Merino wool for the brown fabric, and a delicate, lightweight, long and thick wool bouclé for the beige fabric. As a contemporary vehicle, the restomod features a central screen with the current Renault graphic environment and four small geometric screens behind the steering wheel, inspired by the dials of the original model.

Twingo

Renault showed a brilliant green Renault Twingo E-Tech Electric prototype, paying homage to their Twingo launched in 1992. The new, modern electric version is planned to go to market in 2026.

Renault 4

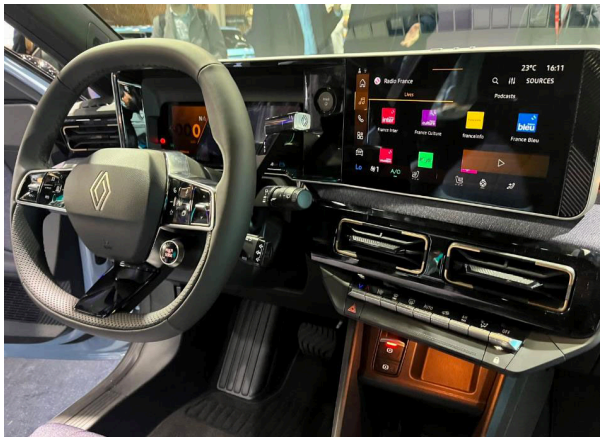


The 1961 Renault 4 revolutionized the automotive market in countries where it was sold, and went on to achieve emblematic status. It was Renault's first family car with a front-mounted engine and no transmission tunnel so its floor was flat. It was a par-excellence roomy and resourceful car for driving around cities and the countryside, and gained great favor in more than 100 countries. Renault sold over 8 million of them!

Now, the electric Renault 4 E-Tech is designed to be at least as versatile as its predecessor. It is 4.14 m long, putting it in the B-segment alongside the the 3.92-metre-long Renault 5. It uses the same AmpR Small platform, engineered for agility, comfort, and interior space. The 4 E-Tech will be made in Maubeuge, France, and is slated to go on sale in 2025.

The surprising Renault FL4WER Power concept is a special version of the new R4, with details like the grilleboard lights in yellow (a French retro touch; France required all headlamps to emit yellow light from 1936 to 1993), reworked bumpers with yellow inserts, and black-and-body-color steel rims with all-terrain tires. The finish is a matte dark gray verging towards midnight blue. Renault says the ground clearance 1.5 cm greater than the regular E-R4. Inside, there's a 'flower power' treatment: the seats are covered in a blue-and-green floral fabric which also runs along the dashboard's front face as well as the canvas roof. Renault says the inspiration comes from surrealist painters.

Renault 5

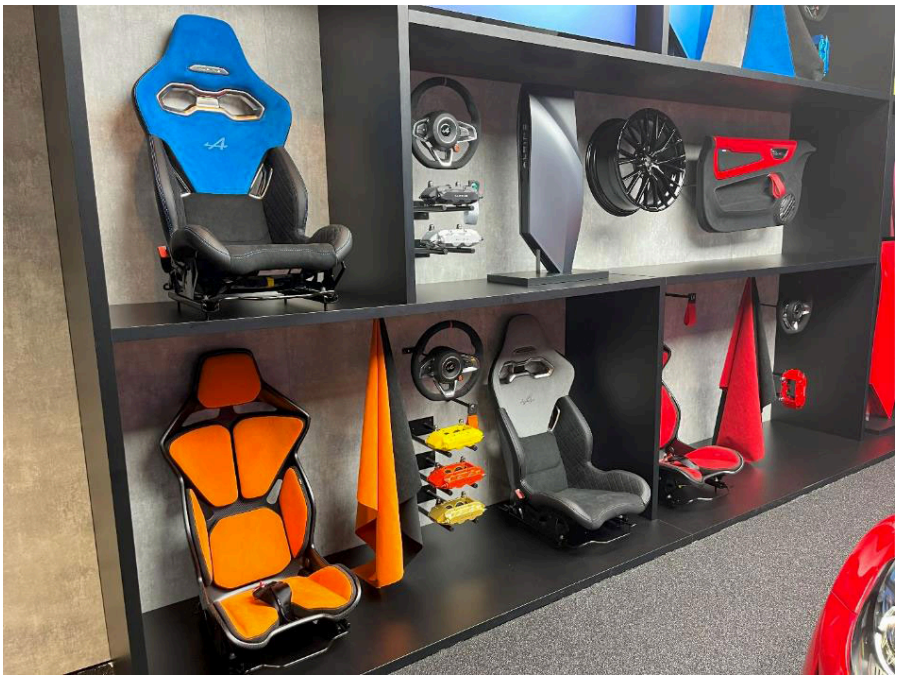


The R5 was covered in the DVN-Interior **Geneva Motor Show report.**

Alpine

Alpine, which is Renault's sport and race brand, Alpine, showed the A390_β concept EV fastback and said it is 85 per cent true to the future production model. It's a 5-seat fastback with flowing lines the designers describe as a 'monolithic bubble' offering a balance between function and aerodynamics.

The car follows the Alpine A290 hatchback BEV, and precedes a planned future electric version of the Alpine A110.



ALPINE ACCESSORIES, INCLUDING SEAT OPTIONS

Dacia

The Dacia Bigster is new, and its name speaks for itself—it's big! Interior plastics are selected for durability, not æsthetics; the car appears designed to watchwords like simple, robust, and economical.

The 10" digital dashboard display and the Media Nav Live multimedia system are designed to be practical. There's wireless connectivity for smartphones, and an induction charger on the high-end trims. There's an Arkamys 3D sound system, as well.

Stellantis

Stellantis brought their global portfolio, including a bunch of model debuts. Citroën, Peugeot and Alfa Romeo showed new BEVs with customer-focused performance and range, and Stellantis' new Chinese partner Leapmotor showed the B10, their first compact SUV with global aspirations, as part of the new B-series platform in the brand’s expanding model line.

Citroën

CITROËN C5 AIRCROSS CONCEPT

Citroën unveiled their C4 and C4 X, both available in all-electric, along with a C5 Aircross concept revealing new proportions of what could be the brand's next C-segment SUV in the range. Innovations, especially interior ones, were hinted at, but not described or shown in detail. There's a 'wellness area' in the spirit of a lounge, where the five occupants will be able to relax and travel in complete serenity. To be discovered in 2025!

CITROËN Ë-C3

The ë-C3 was presented as the first Stellantis EV to be sold for around €20,000—a key offering to popularize EVs in Europe. With its small flat-bottomed steering wheel topped with a digital instrument cluster, it looks like Peugeot ergonomics. The driving position, raised by 10 cm compared to that of the previous C3, and the easily visible hood are more reminiscent of the SUV spirit.

The presented model has a 10.25" touchscreen and height-adjustable advanced seats. The upholstery, as soft as it is welcoming, makes you feel good on board right away.

The brand also celebrated four years of the Ami micromobility vehicle by showing the all-new Ami, a Buggy Vision adventurer, and a spectacular tower display.

CITROËN AMI TOWER (L), AND BUGGY VISION (R)

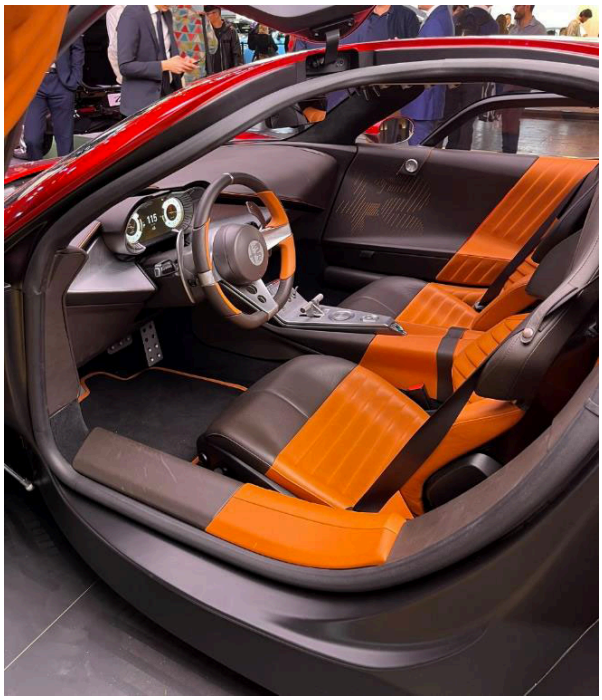
Peugeot

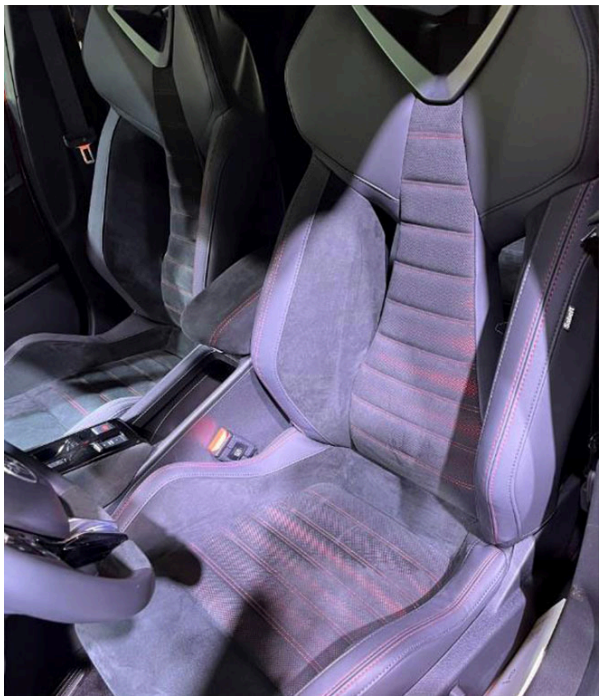
PEUGEOT'S EV LINE, AS PRESENTED AT MONDIAL (PEUGEOT IMAGE)

The unveiling of the E-408 expanded Peugeot's lineup of BEVs to 12 models. Attendees could also see the long-range versions of the E-3008 (700 km) and E-5008 (668 km) SUVs, which are now available for order. They also showed the Inception concept previously **shown** at CES 2023.

Alfa Romeo

Alfa Romeo unveiled their compact 136-hp Junior Ibrida which, like the Elettrica, is available in two power variants: the regular one at 156 hp, and the Veloce at 280 hp. The debut was a highlight among the display of Alfa Romeo's entire vehicle lineup which also included the premiere of the 2025 Tonale.





ALFA ROMEO INTERIOR DISPLAYS, INCLUDING THE SABELT SEAT FOR ALFA ROMEO JUNIOR SPECIALE IBRIDA

(Sabelt was founded in 1972 and started as a manufacturer of seatbelts for original equipment. Over the years, the expansion of seatbelts brought about new production systems allowing the company to consolidate and develop an extensive knowledge of buckle systems, seatbelts, and complex retention systems. This technological foundation made it possible to create specific systems for racing cars, with extreme conditions and safety requirements. Sabelt has expanded their range by also dedicating themselves to high-end sports car accessories and niche markets, becoming the European leader in the development and production of 3 different businesses: Racing, OEM seats, and belts for special applications.)

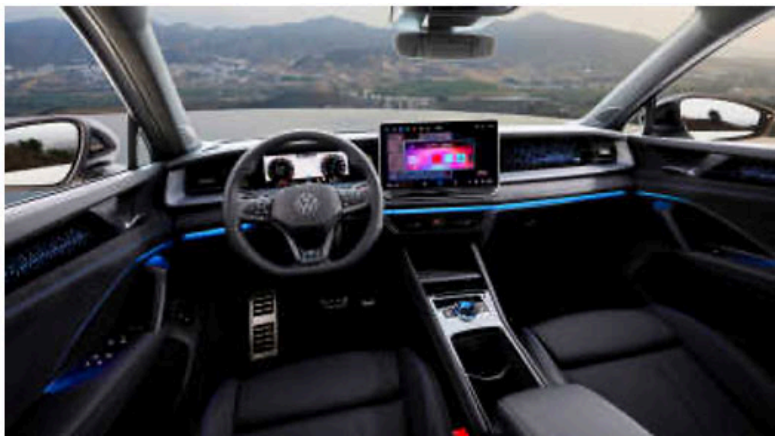
Leapmotor

Stellantis CEO Carlos Tavares explained that bringing Chinese Leapmotor into the company's product portfolio will help to cover the affordable-EV segment, and help Stellantis development teams to be 'inspired by the speed and efficiency' of a Chinese car company.

MOTOR DEMONSTRATION BODY (L), C16 COCKPIT (R)

In addition to the world debut of the B10 SUV, Leapmotor’s display included the T03, a compact A-segment urban EV with B-segment interior space; the C10, an electric D-SUV designed for modern, tech-savvy consumers—both available to order in Europe—and the C16 SUV, which features an 800-volt architecture and fast recharging capabilities.

VW



VW IMAGES

VW unveiled the Tayron, a large five- to seven-seater SUV in between Tiguan and Touareg.

Interesting cluster/display architecture of the new ID.3 GTX

Audi

AUDI SPORTBACK Q6 E-TRON

Audi is expanding the Q6 E-tron lineup to include two coupelike models: the Q6 Sportback e-tron Quattro, and the SQ6 Sportback e-tron, both of which debuted in Paris.

Škoda

Škoda's new Elroq is an electric SUV with a wheelbase of 2.77m giving a decent roominess for the segment, with the many features reflecting the 'simply clever' motto of the brand.

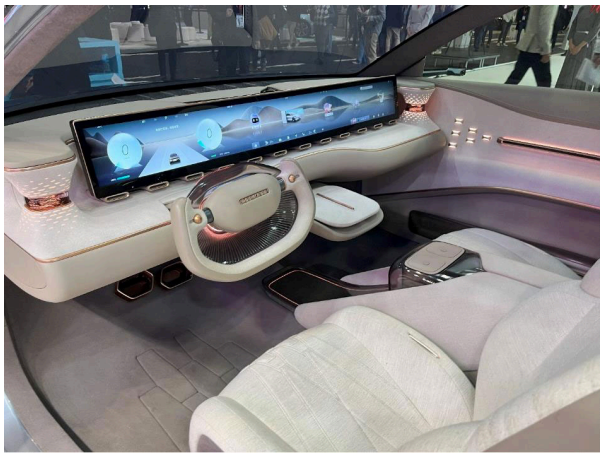
BMW

BMW showed two Neue Klasse Vision vehicles, which provided an outlook on the wide range of BMW's future model portfolio. The BMW Vision New Class is a sporty electric sedan for the premium mid-range. The BMW Vision New Class X transfers the philosophy and technology of the future generation of vehicles to what BMW calls 'the Sports Activity Vehicle segment'.

Cadillac

Cadillac showed the Lyriq and Optiq models. Inside, we were struck by the large digital panel measuring 33". It integrates the instrumentation and the multimedia system. The presentation is modern, and the finish is of a very good level with enhancing materials and flattering details like the cylindrical gear lever.

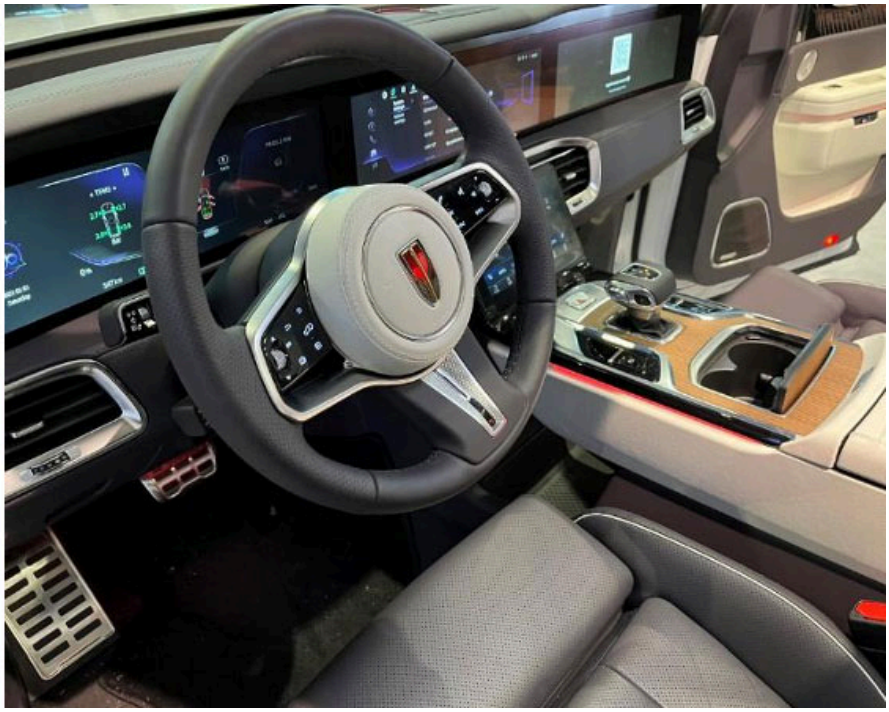
Skyworth



SKYWORTH Y

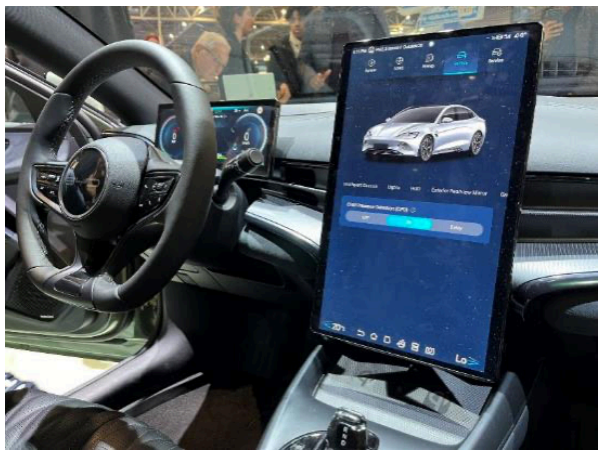
Skyworth is a Chinese company founded in Shenzhen in 1988 as a robotics and electronics company. They make televisions, telephones, computers, tablets, storage batteries, semiconductors, and utility vehicles. Since 2017, the company has diversified into the production of EVs with CATL batteries and BYD motors. They presented four new products: the K, Q, Y, and Hongtu models. The Skyworth Y is an ultrapremium vehicle. Only the K is on sale in Europe, according to their website.

Honggi




Hongqi is the oldest Chinese automotive brand, founded in 1958. They presented models including the EHS7, E-SH9, and more.

BYD



BYD brought several cars, including the popular Seal with its rotating display you change from portrait to landscape orientation by pushing a button.

GAC


The GAC Hyptec HT is an SUV coupé concept with a roomy interior.

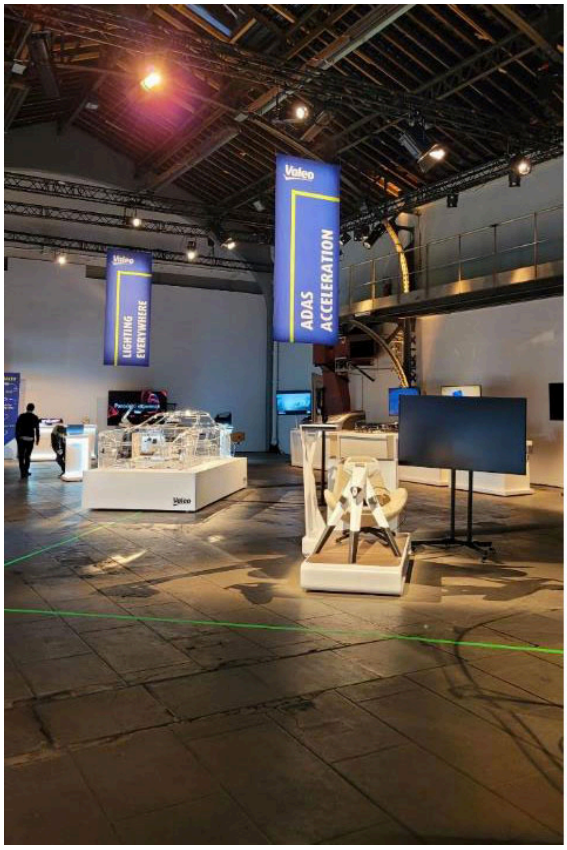
Tesla Cybertruck

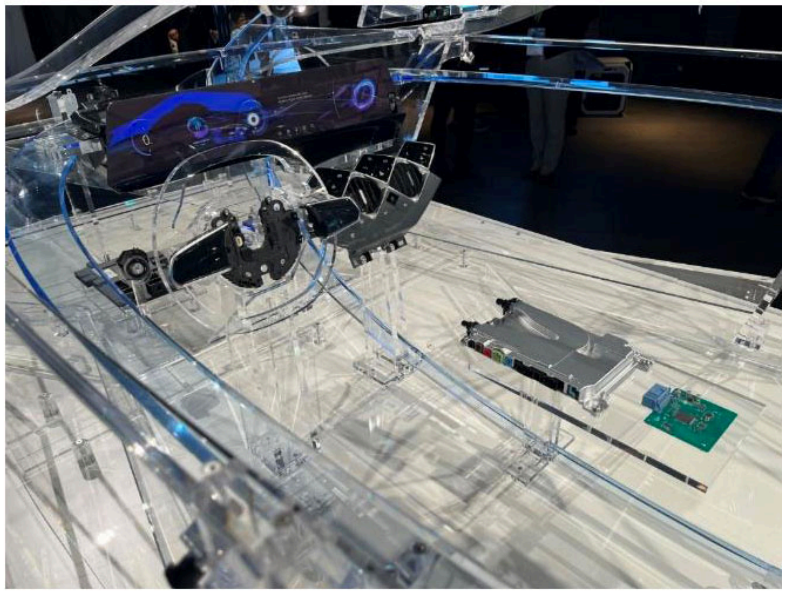
Perhaps this was the first appearance of Musk's hallucination-made-real at a European car show. For show(off) purposes only, we must suppose, because the Cybertruck does not come close to meeting European safety standards.

Interior News

Valeo at Mondial: the Valeo Mobility House

INTERIOR NEWS





Valeo had a booth in the show, and a complete product exhibition in the Valeo Mobility House installed just outside.

Along the different halls, and garage (with demo cars), all activities of Valeo were on display, including lighting, ADAS, electrification, and interior experience.

Reflecting the software-defined vehicle architecture trend, many solutions were visible such as Valeo platform bundling IVI (in-vehicle infotainment), driving assistance, and parking assistance on a single SoC platform. Also, lighting for UX, to improve UX in any situation, to increase safety while enhancing comfort, with adjustable software to occupant profiles with animated and customized interior experience.

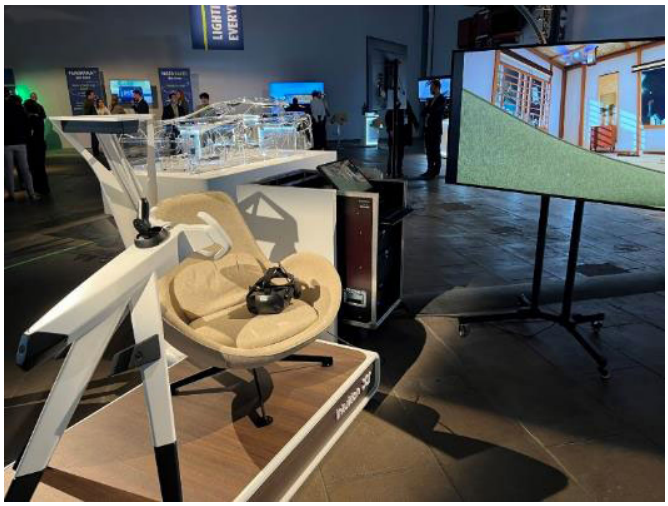
Interior lighting experience with static ambient and backlight system for brand signature, and dynamic ambient lighting were presented in a demo car.

For interior experience reinvention, Panovision—a full-width invisible digital integration of three 16" displays. This technology is a sleek and stylish panoramic display, combined with AR-HUD. Driving and navigation information appear in virtual images in your field of vision to keep the driver looking ahead. It can be combined with other Valeo technologies like DMS to make sure the driver pays attention to the road. The target is an immersive experience without distracting or disturbing the occupants.

Some other striking examples of interior technologies:

- The 21" wide 4K curved display, with integrating cluster, and central information, is in serial production in the Peugeot 3008 and5008.
- DMS camera was presented in a solution integrated just under the rearview mirror.
- Interior radar, for intrusion and motion detection with machine learning capabilities.
- Phone a key, using UWB technology for access control, child presence detection

Intuition XR demonstrator, using virtual reality for entertainment while waiting for charging.



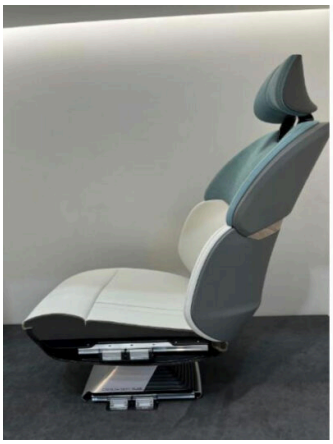
REMI MATHIEU (R) VALEO BRAIN DIV. PRODUCT MARKETING MANAGER; PHILIPPE AUMONT – DVN (L)

THK Stealth Seat-Slide System for Seamless Adjustments

INTERIOR NEWS

DVN IMAGES

At Mondial, they showed their LSR-05 EV prototype, featuring originally developed EV components including an elegant seat adjustment system, called stealth seat slide, based on linear guiding systems. See video

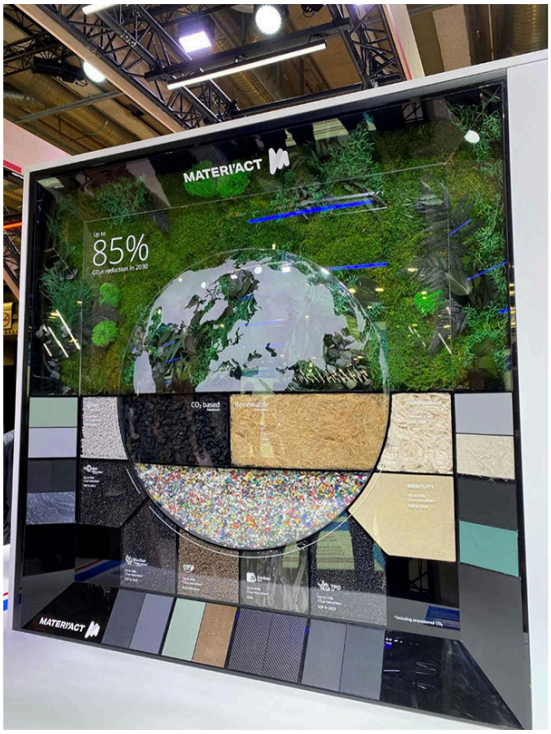


A linear guide is a machine element that uses bearings, which were developed for rotary motion, in order to move heavy objects easily in a straight line. It is referred to as a 'recirculating linear ball bearing' by ISO and JIS, and a 'linear guideway' by the Japan Machine Tool Builders Association. Other names like 'linear motion ball guide' exist, and it is even referred to as a 'linear bearing' in the sense that it is a bearing for linear motion as opposed to rotary motion.
THK calls theirs the LM Guide (linear motion guide).

For seat application, it requires a much smaller installation place on the vehicle floor compared to conventional seats, yet still delivers plenty of maneuverability thanks to what TKH describes as a special actuator. This saves interior space, allowing for improved packaging.

Forvia at Mondial: Materials For Decarbonization

INTERIOR NEWS



The French Automotive Platform (PFA) organized a booth called the Fabrique de l'Electrique (to manufacture electric), an immersive space where they showed solutions to decarbonize mobility, demonstrated how electric motors work (whether battery or hydrogen-powered), and showed new bio-sourced and/or recycled materials.

They also presented an educational wall under the Materi'act banner (the Forvia JV which develops, transforms and commercializes materials with low and ultra-low CO_2 footprint) describing new bio-sourced and/or recycled materials used in car interiors.

Forvia also showed their next-generation seats, called Seat for the Planet. It's designed for EVs, and intended to be more durable. It's also been designed with the aim of reducing the CO_2 footprint at every step, from using sustainable materials to improving lifecycle management, in a circular economy.

In parallel, the new Renault 5 E-Tech features several Forvia technologies, with low-CO_2 materials such as NAFILean-R and Ecorium. NAFILean-R is a bio composite incorporating 20 per cent natural hemp fibers with a matrix of fully recycled polypropylene, used for the structural part of the instrument panel. This material offers a 70-per-cent reduction in CO_2 emissions and a 20-per-cent weight saving, without compromising on resistance, crash safety, and cabin air quality. Ecorium, a premium trimming material for seats, is an alternative to animal leather.

Savoir Faire Paris, Leather Seat Waste Turns Into Shoes

INTERIOR NEWS

Next to the Cadillac booth, and in partnership with them, Savoir Faire Paris organized a small workshop corner to produce custom sneakers, using offcuts from Cadillac leather seats.

The company is a startup with expertise in the art of custom sneakers. It was a good and educational demonstration of circular economy.

At the same time, the workshop illustrated well what is craftmanship, with cutting, sewing, preforming, the different technologies and processes used in seat upholstery production.

French Majority Call Cars Source of Pleasure

INTERIOR NEWS

Ipsos conducted a study in partnership with the Mondial about the French and their passion for automobiles. While automobiles are increasingly stigmatized, Paris Mondial 2024 focuses on the passion for automobiles and wishes to celebrate it. Could this be perceived as a clash, or is it in harmony with the deep motivations of the French? To understand this paradox, Ipsos studied conversations on social networks, questioned an online community of enthusiasts, and analyzed the opinions of the French.

Key findings:

- 81 per cent say they are emotionally engaged with their car which 'accompanies them in the different stages of their life'
- 64 per cent say that the car is 'a source of pleasure'
- 74 per cent (for daily use) and 86 per cent (for long journeys) of French people favor comfort for their ideal car.
- 78 per cent believe that it is 'possible to reconcile automobile pleasure and respect for the environment'.

Regarding purchasing practices and criteria, price comes first for 77 per cent—92 per cent of those under 35, and 80 per cent of women. Next comes engine (43 per cent), comfort (39), brand (36) and interior space dimension (32); we should note the importance of the brand in rural areas of the territory (43 per cent, +7 points on average).

In addition to the quantitative survey, Ipsos deployed an original device combining immersion in the heart of an online community of car enthusiasts, and tracking of social networks with Ipsos Synthesio to identify the trends that gravitate around the automobile.

The first automobile experiences are linked to childhood memories, to the car of the parents and the grandparents, they are described with a touch of nostalgia as 'big toys'. All the senses are engaged—by the style, the smells, the materials, the sound of the engine—and influence the future choices of car, the attachment to a brand or a type of design.

Preferences are defined by characteristics such as the comfort of the seats, the sensory interior, the suspensions, and the road holding. Other important dimensions include autonomy, dynamic driving, design, and the role of technologies.

The Design Lounge

Alfa Romeo Is Back In Paris, with Cars and Coffee

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

After a hiatus of several years, Alfa Romeo has returned to the Paris venue featuring the entire lineup at an exclusive stand plus a few world and local premieres including the new Junior Ibrida and its electric 280-horsepower Veloce version.

Alfa came with a one-of-a-kind stand featuring a multisensory experience with a powerful made-in-Italy flair, all made possible by, as they said, 'collaboration with other Italian brands famous in the world for their pursuit of excellence, craftsmanship, and cultural value'.

More precisely, Alfa Romeo teamed up with Alcantara, ART, Lavazza, Magna Pars, Poltrona Frau, and Schedoni for the new concept of its exhibition area. The contribution of Lavazza reflects perfectly of the Alfa Romeo quadrifoglio (4-leaf clover), and the idea of a coffee corner in this newsletter!

THK Design Exercise for High-Tech Components

THE DESIGN LOUNGE

Japan's THK unveiled their LSR-05 EV prototype at the 2024 Paris auto show. The intent was to present THK components in-situ, including all in-house technology in everything from the electric powertrain to the charging system to the suspension and even the seats.

However, this prototype is a real design exercise, managed by former Nissan design chief Shiro Nakamura, who is heading now his own company, named SN Design Platform, a Tokyo-based design company.

Nissan fans will recognize Nakamura as the designer of the original Leaf EV, as well as the current GT-R sports car. He also designed or oversaw the design of multiple additional Nissan and Infiniti models while he headed the creative teams at both brands from 1999-2017.

The LSR-05 isn't the only EV designed by Nakamura and his team at SN Design Platform in recent times. He only last year presented the EV Sport 01, an electric sports car concept built to showcase electric motors developed by Japanese technology company AIM. While AIM said they planned to build a business case to get the EV Sport 01 into production, a similar statement hasn't been made by THK for the LSR-05, though THK said in a statement that it is working on a more advanced EV prototype, which will by called the LSR-07.

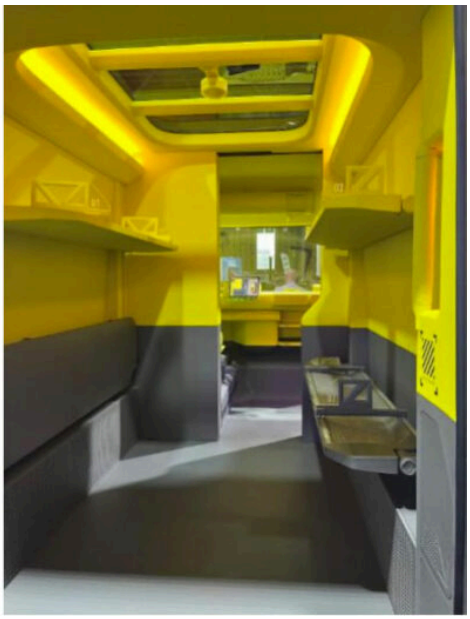
The prototype also uses in-wheel electric motors developed by THK. There is one for each of the rear wheels, rated at 125 hp each, which works together with a conventional electric motor driving the front axle, rated at 295 hp. The in-wheel motors, which also work together with a rear-wheel-steering system, feature a variable magnetic flux system that utilizes a highly rigid ball screw developed by THK. This configuration is like what Dongfeng has in their Fengshen E70, billed by the Chinese automaker as the world's first passenger vehicle with in-wheel motors.

News Mobility

Renault Estafette Commercial Van concept

NEWS MOBILITY

YANNICK BIGNON, RENAULT LCV DESIGN PROJECT DIRECTOR (R), WITH PHILIPPE AUMONT, DVN INTERIOR (L)



On the Renault Pro + booth, the Estafette concept was presented, which the public was able to see for the first time. With its electric drivetrain, this small van is designed for urban deliveries—the 'last mile' concept—where its compact size and agility will be major advantages. It is said to have the footprint of a long Kangoo and maneuverability comparable to that of a Clio. And above all, this compactness does not affect the load capacities in any way, since Renault announces a volume comparable to a much larger Trafic.

If the Estafette name is a reference to the historic Renault van from 1959, the lineage is not as obvious here as on the R4 and R5. The new model does indeed have round corners like its ancestor, and large round headlights placed in a low position, but the designers do not seem to have wanted to make a neo-retro strictly speaking. However, the key element of the famous French utility vehicle is preserved: its sliding front doors, now electric, key to city commute.

It has easy going between the driving cockpit and the cargo are, with an automatic sliding door in between. A production version derived from the concept will be industrialized by 2026, in partnership with Volvo and CMA-CGM, with whom Renault is associated within the Flexis joint venture.

General News

Paris Summit, The Automotive Ecosystem Looking to the Future

GENERAL NEWS

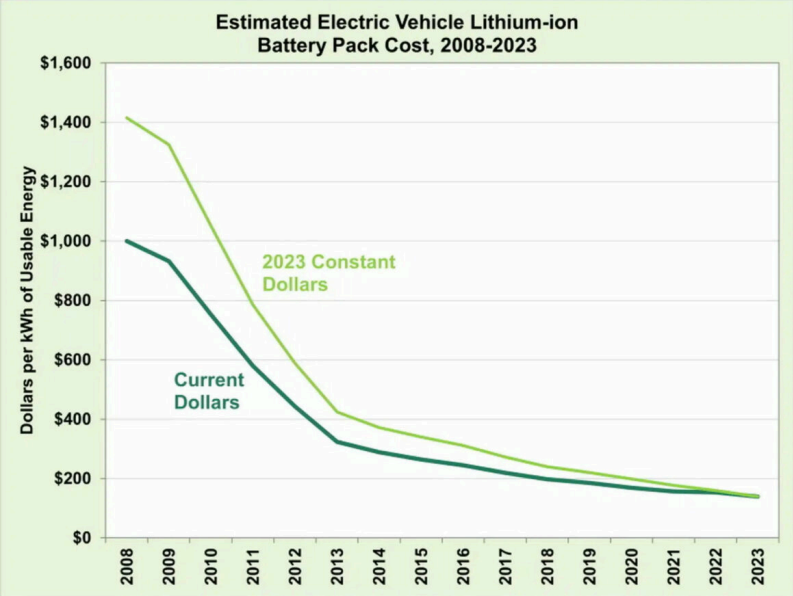
The Paris Automotive Summit was an important pillar of the Paris Mondial, with global leaders of the sector, innovative players and public officials shared their vision of the future challenges of the automotive sector and the future of sustainable mobility.

LEFT TO RIGHT, TOP TO BOTTOM: STELLANTIS CEO CARLOS TAVARES · RENAULT CEO LUCA DE MEO · BMW CEO OLIVER ZIPSE · TOTALENERGIES CEO PATRICK POUYANNÉ · FRENCH AUTOMOTIVE PLATFORM REP LUC CHATEL · ALLIANCE FOR AUTOMOTIVE INNOVATION CEO JOHN BOZZELLA

The conference started with speech from Luc Chatel about the EU auto industry crisis. He said, "The Mondial de l'Auto embodies the alliance between passion and reason. However, we are now faced with reality: this is a historic choice aimed at decarbonizing the auto industry. The challenge is to offer solutions that are affordable to as many people as possible. This is a colossal and devastating challenge for the industry". What we see nowadays is that customer is not ready for EV, and we are facing 2 different approach : customer versus legislator. We have seen a EV sales drop by 15% in Europe in 2024.

Luca de Meo called for cooperation with Chinese automakers. He mentioned BYD and Xiaomi as examples of Chinese success in the electric car industry. Renault is already working with Geely to develop combustion and hybrid powertrains, illustrating a 'coopetition' strategy, with the new automotive digital ecosystem. He emphasized the performance of EVs, which is better to drive than any other technology (though we think this might depend on how 'better' is defined, and by whom). EVs generate 70 per cent less CO_2 than combustion engines overall.

Also, Battery price is not similar to semiconductor industry. Moore law is not applicable for this type of industry

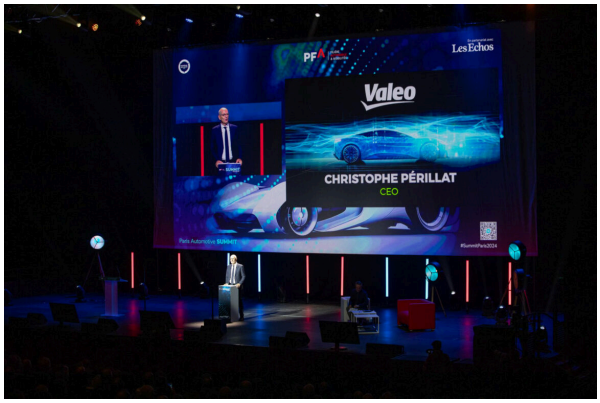


FROM U.S. DEPARTMENT OF ENERGY (DOE)

Oliver Zipse said Europe must cancel its plan to ban new combustion-engine cars from 2035 to reduce reliance on China's battery supply chain: "A correction to the 100% BEV target for 2035 as part of an overall reduction in CO_2 emissions would also allow European OEMs to be less dependent on China for batteries…to stay on course for success, it is essential to follow a strictly technology-agnostic path within the policy framework".

He believes we must demonstrate technological neutrality and consider that all technologies can contribute to reducing CO_2: efficient combustion engines, PHEVs, hybrids, and BEVs. He said that with 250 billion vehicles in Europe, it would be more efficient to power them with synthetic fuels such as e-fuels. He also mentioned hydrogen, which he described as an emerging technology and that it was necessary to support both the production of hydrogen and the installation of multi-energy stations. The 100-per-cent EV objective, he said, is "impossible".

Also, we need to enlarge the scope including customer behavior, charging infrastructure, raw material supply and geopolitical risk. Everybody must collaborate and it is still time to change the EU strategy with additional solutions.



Valeo President, Christophe Périllat presented the stakes and challenges of the automobile industry, which he said is undergoing its biggest transformation since the invention of the automobile. Mobility is shifting rapidly more and more to electric-powered vehicles. He shared insights into how this historic transformation is an important opportunity for the automotive industry to work together to fight global warming and the challenges that lie ahead.

He emphasized the importance of the shift to SDV, a promise for a car which can evolves along its lifecycle. "The software-defined vehicle is the promise of a vehicle that can be updated, upgraded and customized, throughout its entire life cycle. You'll be able to add or remove functions according to your needs. Just like your smartphone". He highlighted how SDV will forever change our relationship with the car, reminding us that this technological revolution requires a collective shift involving an entire ecosystem.

Valeo interesting approach is combining SW update and also HW update like additional memory stick or management of Cybersecurity new norms for the next 15 years. OEM cannot do this activity alone and need collaboration with OS, middleware, cloud, cybersecurity expert companies (example of "Valeo – Renault – Google – Orange" or "BMW – Valeo – Qualcomm" for Main Chassis controller).

SDVs will change the electric/electronic architecture and content of a car, from 50 to 150 ECUs (size of a smart phone) to 5 controllers (size of a laptop), related wiring reduction. The central unit will be independent from a car program!

Patrick Pouyanné criticized synthetic fuels as too expensive to produce. He explained how these synthetic fuels are produced: from biogenic CO_2 (not anthropogenic) and the hydrogen molecule that is not found naturally on Earth and that must be produced with electrons and water. "It is more complicated to make than gasoline and it costs more," he said. "A Ferrari owner could afford this fuel, not other consumers". Furthermore, Mr. Pouyanné was not more positive for hydrogen as a credible option.

He said other fuels, like ethanol or HVO (a slightly cleaner Diesel) are possible. He considers that his stations will still serve gasoline until 2050 and probably much longer for trucks, and that Africa is not about to adopt EVs.

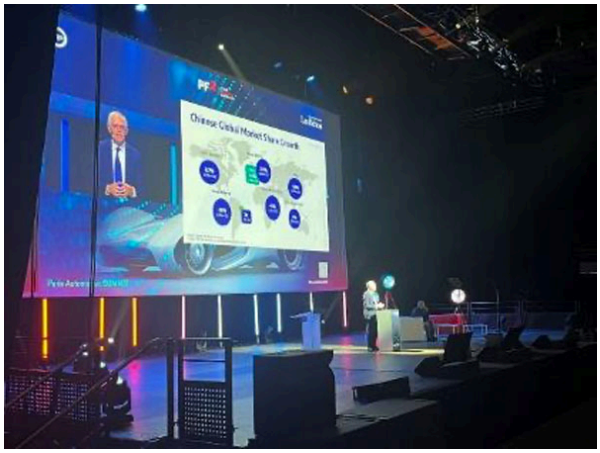
LES ECHOS EDITOR-IN-CHIEF DAVID BARROUX AND ORANGE CEO CHRISTEL HEYDEMANN

Orange, the telecom company, is at the heart of automotive usage transformation. Their expertise in digitalization, integration, connectivity, storage, and security now applies directly to the automotive sector. 5G, AI, and IoT are key to creating safer, smarter, and more sustainable cars and they work with many car manufacturers on this. She stated that innovation comes with responsibility, and cybersecurity of connected vehicles is a big part of it. Within Software République, Orange Cyberdefense partners with Renault Group and Thales to develop an AI-driven "detect & respond" solution against real-time cyberattack. She concluded saying that open innovation will continue to drive this industry forward.

John Bozzella stated that safety and decarbonization are the main challenges of the industry. Decarbonization needs, as he said, many technologies. About EVs, he proposes to change the perspective, saying there's no range anxiety, there's only charging anxiety! He also stated that the US is divided in two worlds, with California and some other states (35 per cent) are EV-only for the future.

Carlos Tavares said, "We need to raise our game. Every second we spend pausing is time we lose to improve". For example, any delay to the EU emissions targets will only mean that European automakers will fall further behind their rivals from China.

He explained that the industry is fighting to survive. Criticism of the decision to ban cars with combustion engines in 2035 is starting up again, even though all European manufacturers are preparing for it. Nothing can force a customer to buy a vehicle with a new technology that is little understood and poorly promoted. However, for a driver who does an average of 34 km per day, the autonomy of any electric vehicle is largely sufficient. And for long journeys, fast charging stations are now available. In this curious game of poker, manufacturers know that they can no longer back down and that the shift to EVs is desirable and inevitable. The battle of the sale price remains to be won. It is underway on the technical level (gasoline/electric parity) but volumes are still needed, and for that, affordable small European cars. Stellantis offers this type of vehicle with Leapmotors, Chinese to the core even if they are assembled in Poland.



He gave an interesting perspective with Chinese automakers' market share per market, which still limited: China, 56 per cent; India & Asia Pacific, 4 per cent; Africa, 11 per cent; South America, 10 per cent; North America, 0.7 per cent, and Europe, 2.6 per cent.