DVN-I
Automotive Interior

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Editorial

Interior Emotional Intelligence

HONDA NEUV MINI EV CONCEPT AT CES 2017

In this week's DVN-I Newsletter, see our CTO Forum with an interview of one of our new DVN Interior members, Melexis' Roland Steger. With their broad range of engineered microelectronic products, Melexis caters for all the many features, technologies, and sensors necessary in today's interior, and helps designers and engineers create emotional intelligence which generates empathy between a car and its users.

Sensors in seats and belts…lighting, sound, and music… temperature, position, posture, gesture, controls…there's a long list of ingredients for the cabin of future, organized around occupant activities while making sure they are safe, comfortable, and that they enjoy the car interior as a living space.

We'll continue to publish interviews like this to get you well and truly acquainted with the broad DVN-I community and its members, hoping of course that along the upcoming Workshops people will be able to meet in-person again. That's why we work to bring you maximum value in your weekly DVN-I Newsletter, we're glad you're in the DVN Interior community! (And if you aren't yet, **come join in**).

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

CTO Forum: Interview with Roland Steger, from Melexis

Interview with Roland Steger, Business Development Manager of **Melexis,** a leading company in microelectronic solutions for automotive, home automation, industrial, and medical applications.

DVN Interior: What does the chip shortage crisis mean for Melexis?

Roland Steger: For a number of months, the press has been full of news about general chip shortages and there are multiple reasons for this. First of all, we see an increased need for semiconductors in general as we are doing more and more online: online meetings, shopping, gaming, cloud computing, etc. Furthermore, we see the supply chain bullwhip effect in full action. This inventory acceleration phenomenon describes how inventories fluctuate more heavily the more you move upstream in the supply chain. As the automotive supply chain is notoriously long and extremely global involving lots of different tiers, the bullwhip effect creates often more havoc there than in less complex value chains. We observe that everything was pulled dry in inventory in Q2 2020 and we now see a massive demand surge to poise the lines again. Clearly these inventory effects have been aggravated by the Covid-19 and hoarding behavior.

At Melexis, we are acting on many fronts to increase capacity in order to serve our customers and keep our commitments. In 2020, we decided to increase our inventories against all customer and market signals at that time. We were convinced that the bullwhip effect was playing and we therefore calculated our Months of Supply against future demand and not against the forecasts and orders we had from our customers at that time. That actually prevented worse for Q4 2020 and Q1 2021. But it was not enough. Today we allocate a share of our available material to all customers and market combinations. Main goal is to keep most lines running at best, and especially to avoid line-downs at the automakers.

At the same time, we continue to invest using our normal processes for floorspace expansions and Capex investments. Our enlarged manufacturing facility in Sofia is finalized and the first machines have been transferred to the new building in April. We continuously invest in handlers and testers to increase our overall test capacity. During the COVID-19 pandemic and the current order spikes, we work with our people to keep morale and engagement high in spite of the stressful times. We equally engage with our suppliers to structurally increase capacity and flexibility through dual sourcing. We work closely with our customers to avoid line downs and to improve visibility for the longer term. At the same time, we are keeping a close eye on the overall market situation in order to react timely when the overheating corrects itself.

DVN-I: Melexis is already involved in interior sensing (seat, belt, temperature, lighting); Is the interior an important domain for your technologies?

RS: Every year more cars enter the market with interiors that look like living rooms. Driver and passenger monitoring systems are emulating an "emotional intelligence," enabling the car to proactively respond to the user's mood by adjusting for example the ambient lighting or music—or even the smell of the vehicle. Biometric technology allows everyone inside the car to be identified. This gives each person access to his or her own content, settings, or cloud-based services. Digital assistants provide guidance. Cars are equipped with a wide range of sensors, in-cabin cameras and radars.

Further down the line, concept autonomous cars display interiors that have been turned into complete gaming consoles: seating vibrations, air conditioning, and fragrance infusion are all part of the game environment and stimulate perceptions. Other cockpits look more like a wellness spa, with seats that move, pivot and recline according to users' perceived needs ("Seat As A Service!"). The cockpit of the car will be driven by what people's activity inside the car.

Melexis provides innovative micro-electronic semiconductor solutions to enable the cockpit of the future. We focus on lighting with our LIN RGB solutions, occupant and in-cabin monitoring with our Time-of-flight technology, seat control with our motor driver solutions enabling multiple possibilities thanks to the inherent technology and sensor flexibility. Seat position adjustment with latch & switch also comes as a PCB-less version, making it a plug & play solution.

Melexis sets the market reference solution for seat belt buckle detection with its 2-wire latch & switch. This proves it is still possible to enhance such sensors, in this case by offering lateral sensing features solving mechanical constraints.

SEAT MASSAGE

The development of car seats relieving the strain for drivers and passengers traveling long distances is becoming a key competitive advantage. This is particularly important as low back pain is one of the most frequent and disabling conditions affecting people today. More attention is thus being given to seat form, noise, odor, and user friendliness. Massage seats are being introduced to further increase the level of comfort in the car. Lumbar massage, when properly done, decreases low back muscle activity and increases blood circulation, which together can reduce the risk of low back pain. MelexisPressure Sensor ICs enable comfort features in the cockpit such as seat lumbar applications.

SEAT FAN

With the increase in the number of powerful GPUs in the cockpit—such as for data processing and for cameras—there is an increasing demand for seat fans to keep occupants cool. HVAC systems have to support air purifiers. Melexis offers solutions in these areas too, especially with its state-of-the-art all-in-one Single-Coil Fan and Pump Driver ICs.

Active real-time **Driver Monitoring Systems** (DMS) use sensors in the steering wheel or an inward-facing camera to track driver alertness and help ensure the driver stays engaged during vehicle operation. This safety feature alerts the driver to signs of drowsiness or distraction—a crucial functionality for autonomous vehicles. If the system detects signs of distraction, it repeatedly prompts the driver via visual and audible warnings, seat vibrations, or small auto-braking events. The driver can then restore full control of the vehicle and rest if needed.

Some manufacturers use a **Child/Passenger Monitoring** system that gives front-seat passengers and the driver a view of what's going on in the back seats on the center display. Other applications include driver identification and authentication; heart rate measurement; head position tracking; eye position tracking; and driver impairment level detection. These technology innovations contribute to the more robust safety solutions needed for the next generation of autonomous driving functions.

THE SEATING EXPERIENCE

Comfortable yet fully functional seating is an essential component of the cockpit of the future. Innovations are constantly coming to market, offering improved comfort, new materials and autonomous technologies. Indeed, manufacturers are now regarding the "car seat" as a somewhat old-fashioned term, replacing it with the "seating experience." The aim is to offer something comparable to a first-class airline chair.

DRIVING CONTROL & COMMANDS (HMI)

CONTROL KNOB

Gesture control does not necessarily mean the demise of the humble control knob. Reinvented and renamed as a "multifunction controller", the latest control knobs work in parallel with touchscreen technology. They can be pressed, twisted and nudged to control the climate system, audio settings, volume and a host of other uses. The same technology can be used to control joystick type of motion such as the Melexis multi-function stalk indicators. Melexis' Automotive 3D Magnetometer (magnetic field sensor) supports cockpit HMI applications such as stalk indicators or e-knob control.

BUTTON CONTROL

With a complete portfolio of cockpit Latches & Switches including lateral sensing solutions, Melexis supports all the buttons surrounding a driver, including safety critical ones such as:

- Headlamp switch
- Driver's hand adjustment
- Interface button on the wheel (thumb-wheel button)
- Sun visor position detection
- Stalk-end position direction
- Deactivations.
- ...

STEERING WHEEL

In the immediate future, even fully autonomous vehicles will still be equipped with a steering column and steering wheel. In this area, Melexis magnetic position sensor ICs are suitable for a range of applications. These include position sensing for brake or accelerator pedal, and E-steering which also requires torque sensing with magnetic linear Hall sensors.

TRANSMISSION

A recent innovation is a rotary controller that replaces the shift lever, the traditional control wheel, and a bank of buttons. Such an automatic transmission shifter solution (lever, knob and stub type) is possible with Triaxis® Magnetic Position Sensors. These all reduce the integration efforts and enable a smaller solution by removing the need for a big lever if desired.

DVN-I: How will your technologies influence the interior thermal management?

RS: An important factor to our comfort is obviously the cockpit temperature. In an ideal case the car should monitor and adjust the temperature automatically, which is possible using Melexis Contactless Infrared Sensors. To ensure the optimum temperature, thermal management is key, especially in electric vehicles which no longer benefit from the engine heat. Positive Temperature Coefficient (PTC) heaters are therefore added to not only maintain the battery at an optimum temperature (for efficiency purposes), but also to provide heat for driver and passengers. Melexis enables this technology with the use of innovative Integrated Current Sensors.

DVN-I: Driver Monitoring System will be key to manage safe transition in L^2. How could it be applied today, as drowsiness and hypo-vigilance are already major safety issues?

Time-of-flight (ToF) technology enables new functionalities like monitoring driver tiredness, eye gaze, and hands-on-wheel, as well as vehicle occupancy (seat belt detection, child left behind). The ToF cameras have many advantages. They work at day and night. They provide high distance accuracy, sunlight invariance and sunlight robustness. And they operate at fast speeds of up to 135 (distance) frames per second. Moreover, direct output of the 3D depth information requires less image processing for calculating the distance information, leading to smaller processors for image processing. With either

infrared single point thermometer or infrared sensor array, Melexis enables solutions in the cockpit such as the HVAC system adapting automatically to the temperature of the driver.

Melexis has developed its optical ToF technology for a range of cockpit applications. By 2019, Melexis had shipped more than one million ToF sensor ICs for interior sensing. And we see a rapidly growing interest from automakers and Tier 1s as ToF technology enables many interior sensing use cases.

GESTURE CONTROL

Gesture control can play a significant role in reducing the probability of causing a distraction-related accident because it minimizes the need for a driver to take their eyes off the road. Applications currently using simple hand gestures in high-end cars include answering a phone call, changing the radio channel or volume, scrolling through the menu, zooming the navigation screen, playing the next song, opening or closing the sunroof, or operating interior lighting. A 3D ToF Camera is essential to facilitate gesture control. In 2019 and 2020 Melexis launched its third generation automotive qualified 3D ToF sensor ICs which has since then been adopted by premium OEMs.

DVN-I: What opportunities can you create into interior design with your embedded lighting solutions?

RS: Interior lighting can bring comfort as well as vital safety features to cars, especially for autonomous driving. Without direct control of the car, the occupant's focus will obviously not be on the road. Smart lighting therefore has a key role to play in supporting the communication of the car to its occupant. The cockpit will, for example, quickly turn the interior lights to red to communicate danger, immediately catching the attention of the driver. Development of interior lighting is taking place in a number of directions. And it's a fast-growing space. One premium manufacturer is predicting a tenfold increase in lighting elements in the car in the near future.

Static Ambient Lighting and Slowly Animated Lighting applications are being standardized in every vehicle. Little used areas for lighting that are now "seeing the light" include the floor, smart décor trims, cupholders, climate control vents, and the surfaces of textiles. Melexis offers Local Interconnect Network (LIN) products capable of driving multiple LEDs and simplifying the overall design.

Taking the concept one step further is highly animated lighting. This can be integrated into driver assistance systems to visually provide information or reinforce warnings. An animated red light could warn of an impending collision. If a cyclist is approaching a stationary car, the vehicle could rapidly flash red interior lights on a door panel strip to warn its drivers and passengers before opening a door. For such applications, Melexis has developed the Melexis Light Bus (MeLiBu™). This is a high-speed, low-bill-of-materials, robust automotive communication system. It enables applications with high RGB-LED counts for highly animated light animations within cars. The MeLiBu technology is already being adopted by leading global car manufacturers in order to enhance the safety features of their newest models.

Multicolor ambient lightingis becoming more popular. In parallel, the number of LEDs as well as the car constraints are increasing, which makes the automaker's job of system integration much more difficult. Melexis is working closely with automakers to provide a scalable solution that supports low-end up to high-end cars as well as addressing the development challenges.

DVN-I: How are you working with automakers and tier-1s?

RS: Melexis is big enough to serve, but small enough to care. Of course, we serve automakers worldwide and the (new) suppliers along the value chain. Technological innovation doesn't happen in isolation. It happens by talking to customers, understanding their needs and concerns and translating them into products. It is this customer centered approach that has been the fundament of our success.

With our immediate tier-1 customers, we work with established key account management teams, sales teams and sales support teams following international standards (DIN ISO TS16949).

Due to recent developments in the value chain, vehicle makers and IC-suppliers are moving more closely to each other in terms of supplier-customer relationships. Melexis caters to that with a dedicated OEM Business Development Team. This team works closely with major global automakers. It gives us the opportunity to identify upcoming trends and requirements in an early stage. This ensures we deliver technically and commercially competitive solutions in due course.

Interior News

Huntsman's PU Seating Solutions For Higher Comfort

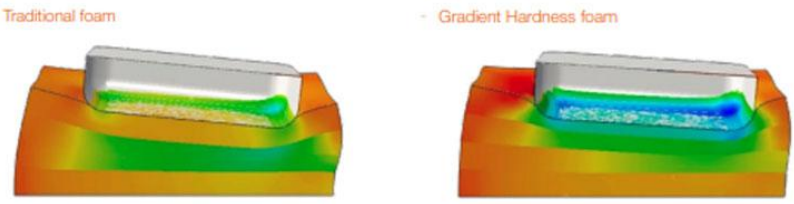
INTERIOR NEWS

IMAGES: HUNTSMAN

It can take 15 kg of foam or more per car to deliver the levels of comfort expected today. But integrations like heating, air conditioning, lumbar support and airbags are taking up more space from foam. Meanwhile, sleek, thin seats are increasingly fashionable. In spite of this trend the comfort in seating should continuously increase.

Huntsman's Rubiflex® MDI-based product line provides unique properties with a high-performance seating foam. Compared to TDI, MDI offers increased comfort throughout the lifetime of the foam.

Rubiflex polyurethane systems can help to get a smooth and soft initial feeling, provide an excellent support when someone changes his position in the seat and can also meet the needs of a broad range of drivers and passengers across different ages, weights and builds. Rubiflex gradient hardness polyurethane systems maintain a difference in hardness between the top and middle foam layer, while still remaining one uniform foam piece. This provides good body support and pressure distribution, leading to high comfort across the vehicle's lifetime.



IMAGES: HUNTSMAN

The vibration damping characteristics of this technology open up possibilities to design thin seats or a different seat structure to improve the in-vehicle package. These solutions also contribute to improving the indoor air quality while reducing VOC emissions and odor.

On Huntsman's development roadmap is a one-piece seat, where the seat back, seat cushion and headrest are integrated in one piece with a variety of hardness. They are also working on ultra-thin seats with increased comfort and reduced weight, and investigating the integration of electronics and foam for control, safety and entertainment.

MAZDA 3 (IMAGE: MAZDA)

Huntsman was selected as Mazda's partner in its quest for a comfortable seating system. From seating covers and foam pads to springs and frames, Mazda needed multiple elements to work together seamlessly to support the body and deliver true comfort. Meeting all of Mazda's comfort and pressure distribution requirements in a single foam, Rubiflex HR GH polyurethane system requires no extra bonding, which helps to keep material and processing costs down. The material has subsequently been used in the new Mazda 3 and has received positive press reviews.

HMI Intuitive & Functional Sounds with Nissan/Bandai Namco

INTERIOR NEWS

NISSAN BANDAI/NAMCO ENGINEERS CO-DEVELOPING SOUNDS IN-STUDIO

Getting these sounds right is now more important than ever. That's why the sound engineers at Nissan teamed up with experts at leading entertainment company Bandai Namco Group to develop in-car sounds for new Nissan models, starting with the 2021 Nissan Rogue and Pathfinder in the United States, the Nissan Note in Japan and the new Nissan Qashqai in Europe.

Bandai Namco is the third largest video game holding companies in Japan in terms of revenue and market capitalization after Sony and Nintendo. Bandai Namco Group is well-known not only for developing video game classics like Pac-Man, Tekken and Taiko Drum Master, but also for amusement facilities, toys, and hobby items such as Gundam. They were asked to help create a higher quality sound that uses pitch, tempo and tone to get information across.

Vehicles 'speak' to drivers all the time. Beeps and other sound alerts are common whether a door is ajar, or a seatbelt unfastened. It's an important part of HMI and the "dialog" between the occupants and the car. Nissan wanted the 'voice' of its vehicles to have more personality and character, even to generate sounds with intention and emotion.

"We wanted to make it easier to understand the information in the car and provide an emotional tone so that people feel the Nissan brand," says Hiroyuki Suzuki, Nissan's lead engineer for in-car information sound design. "In game development, Bandai Namco's sound creators develop sounds that simulate players' intuitive understanding. We collaborated to create sounds that can help drivers have a similar intuitive understanding, in addition to creating sounds that will become synonymous with Nissan global models."

In video games, there're two types of sound: one creates the world view of the story the other is functional and give you feedback or warn you of danger," said a Bandai speaker. In this project, they developed sounds that are both distinctly Nissan and functional.

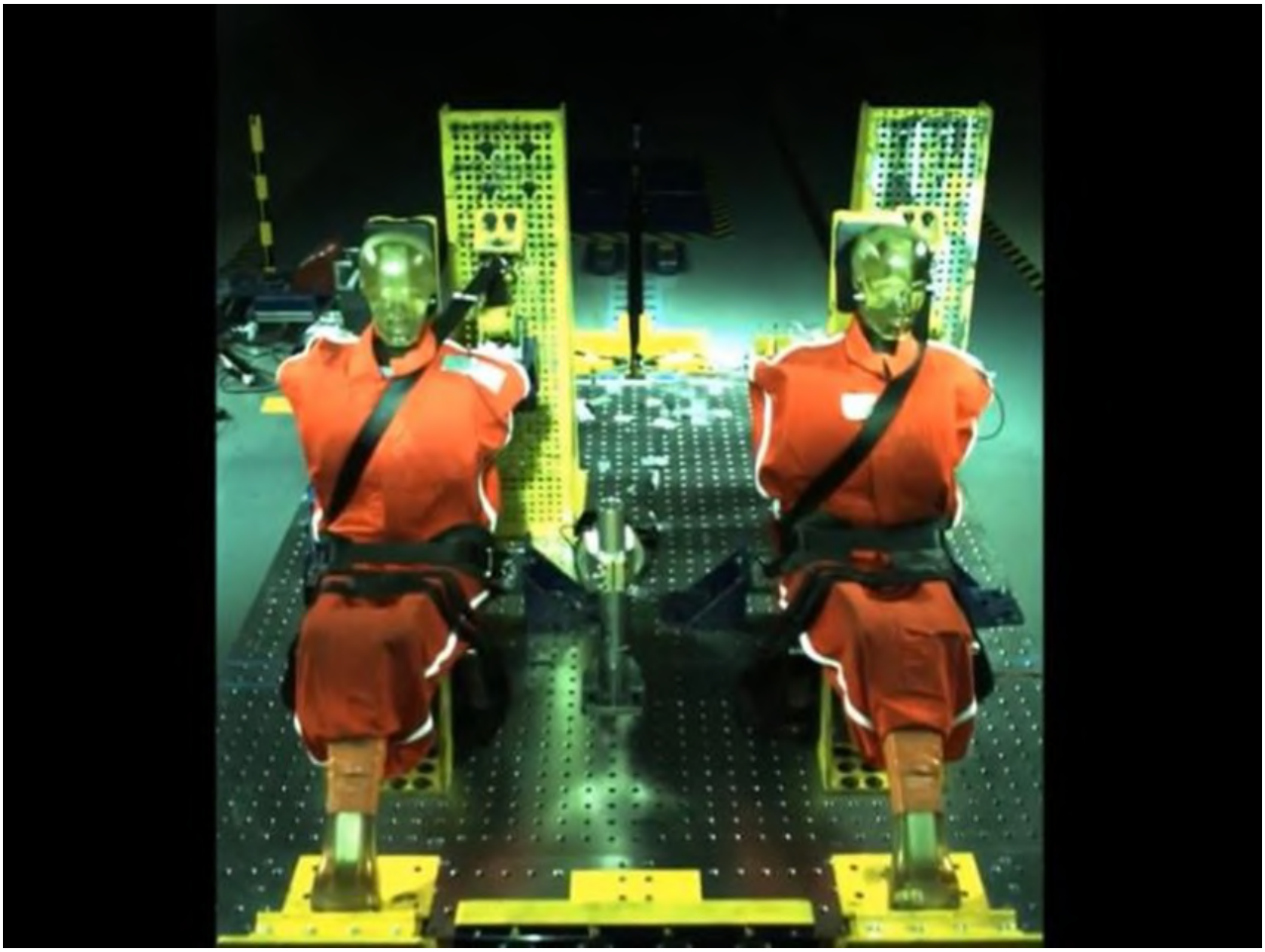
As Nissan's ergonomics test engineer explains: "Research has shown that urgency depends on the frequency of the sound, and that severity depends on the frequency itself. In order to intuitively understand what types of sounds are used, each sound is divided into functional groups and differentiated by tone."

Nissan engineers also had to consider the speaker itself, and a new high-quality speaker fits under the dashboard close to the driver and is optimized for the new information soundscape, making warning sounds distinctive from the sound from the audio speakers.

Listen to sounds before/after in this **video**.

Veoneer RCS Triggers Passive Safety

INTERIOR NEWS



Occupant safety systems rely on active sensors and microprocessors to trigger pre-crash and in-crash occupant protection (such as tightening safety belts and deploying airbags) when it judges a collision is inevitable. Critical crash information is sent over e-call to emergency services and recorded for post-crash analysis.

Veoneer is an American-Swedish provider of automotive technology based in Stockholm, Sweden. The company is the result of a spin-off in 2018 of Autoliv's electronics and automated driving divisions. Veoneer is a supplier of Restraint Control Systems (RCS), described in this video. RCS microprocessors decide when a seatbelt pre-tensioner should be triggered and when an airbag system should be deployed. The microprocessor is supported by satellite sensors mounted in the door beam, the pillar between the doors, the rocker panel, and various locations near the front of the vehicle, to provide acceleration data to enable early and appropriate deployment of the airbags and seatbelt pre-tensioners.

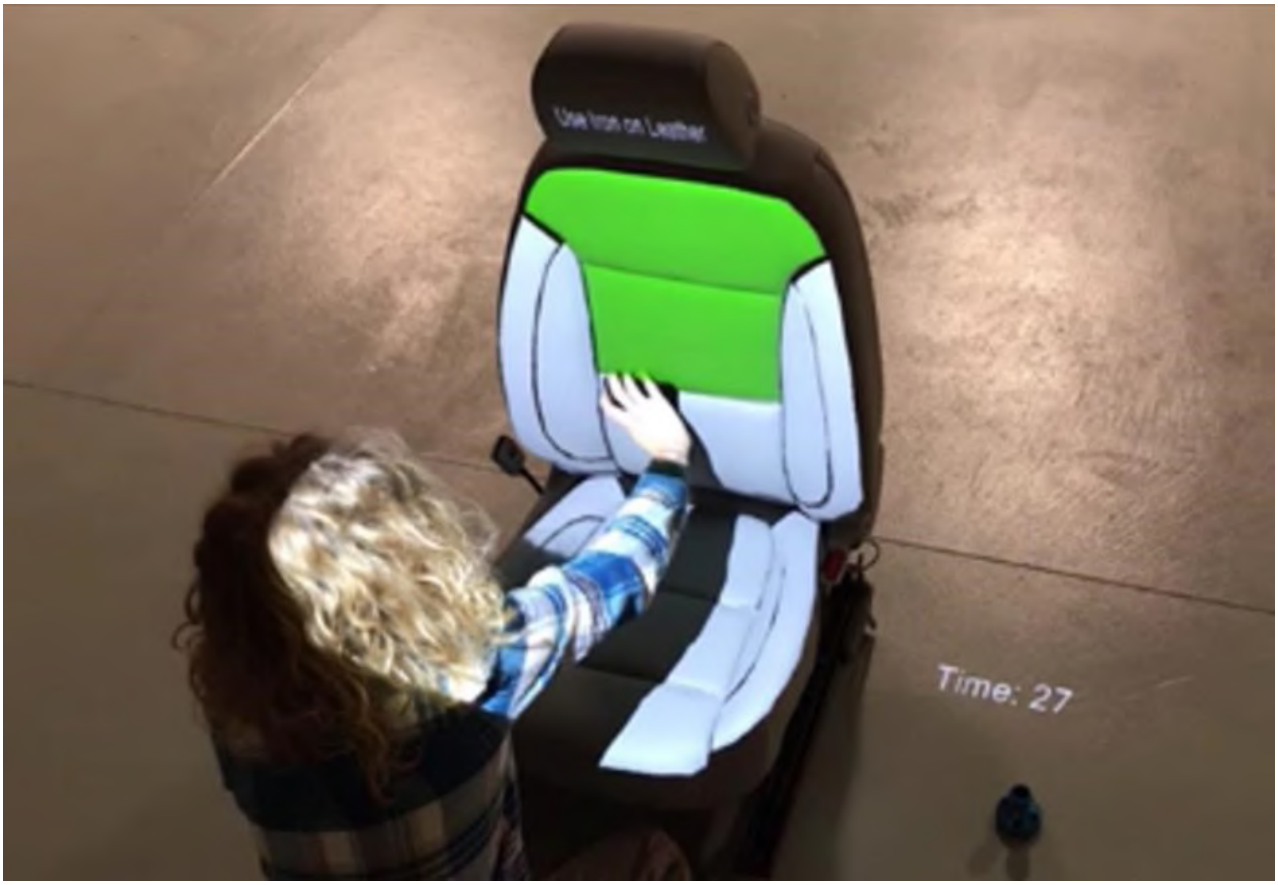
Veoneer's camera-based vision systems gives the driver an additional pair of eyes, scanning the vehicle's surroundings for danger; advanced algorithms developed in-house analyse and interpret the street scene even in complex scenarios.

During 2020, Euro NCAP tested 11 car models. Six of these vehicles with Veoneer's top-performing RCS earned a 5-star rating: the Seat Leon, Mazda MX-30, VW ID.3, Land Rover Defender, and Kia Sorento.

FIVE CARS WITH VEONEER RCS WITH EURO NCAP 5 STARS

Light Guide AR Interior Parts Inspection

INTERIOR NEWS



SEAT VISUAL INSPECTION (IMAGE: LIGHTGUIDE)

Interior parts such as instrument panels, door panels or headliners are large and visible-in-the-car parts. Inspection of these parts has always been a dimensional and visual challenge, where manufacturers still require very skilled operators to support or complete tasks.

Light Guides with Augmented Reality (AR) are tools that can be used to help guide and confirm complex manual work or visual inspection with minimal training and invested costs.

LightGuide Systems, based in Wixom, Michigan, started using visual guides to standardize assembly processes in 2009, and today LightGuide's Augmented Reality systems use digital projection technology to overlay a virtual operating canvas onto any work surface, interfacing with existing manufacturing equipment to deliver immersive, interactive visual work instructions that simplify complex manual tasks.

Their solutionallows for "Touching off" on parts to confirm components and verify the quality of class A surfaces of automotive interior components. In addition, minimal tooling and hardware are needed to set up inspections that would normally be required for traditional camera visions systems.

LightGuide Projection AR creates a high-lumen, high-resolution, hands-free user experience. It speeds up employee training, and it's a much more solid base for further process improvements.

The AR visual guidance empowers the best of human intelligence for a smarter, safer, and more efficient factory floor. It captures real-time operational metrics, including station status, cycle time, step times, throughput, and defect logging. End result could be a "digital birth certificate" for every part produced.

Seat Inspection Video - **Door Inspection Video** - **Headliner Assembly Video**

DOOR PANEL VISUAL INSPECTION (IMAGE: LIGHTGUIDE)

Forehead Humidity Confirmed As Motion Sickness Marker

INTERIOR NEWS

With the commercialization of autonomous driving technology and diversification of how passengers spend their time, carsickness is a growing concern. No effective quantitative method of spotting it using physiological indices in driving conditions of a vehicle has been found up to now, but that appears to be changing.

In a recent International Journal of Automotive Engineering Research Paper, a Nissan team presented a study named: "Development of evaluating methods for passenger's motion thickness in real driving environment". It has been presented at the JSAE 2020 Fall Congress.

The objective of this study was to develop a robust method for quantitative evaluation in real driving environment. As a result of inducing motion sickness of a back passenger by driving a vehicle on a test course, changes of forehead humidity, which reflects the amount of sweating, increased significantly. The result indicates forehead humidity is an effective index for quantifying motion sickness in real driving environment.

Many other parameters have been researched lately, including Heart Rate Variability (HRV), Respiration Rate (RR), Electrodermal activity (EDA), blood flow, dermal temperature, but no complete evaluation has been really done in real driving conditions, only in simulator conditions.

Here, it has been done on a test circuit, with a driver and male and female experimenters, following a routine of a 700m lap tour, with acceleration and deceleration from 20 to 50 km/h, questions to the experimenter, a 1-minute rest period, and again and again.

It confirmed that forehead humidity increased a lot with the high intensity conditions, and correlate with subjective level of discomfort declared by the experimenters. EDA was measured, but was not significantly different.

These results should help to mitigate motion sickness, if only by re-designing air flow and temperature to the occupants.

Reference: International Journal of Automotive Engineering Vol.12 N°2 2021; Research Paper 20214436

The Design Lounge

7-Seat SUVs, Continued

THE DESIGN LOUNGE

The 'Family Truckster', as discussed earlier in the Design Lounge, has evolved over the years into the 7-seat SUV available today. Though many makers have evolved into this solution, some models—such as the Hyundai Palisade and Kia Telluride—are newcomers that have made a significant impact without the historical background.

This week we look at these twins and their design impact and placement.

Hyundai Palisade

The Hyundai Palisade is targeted as a 'near-luxury' family vehicle placed just below their new Genesis brand of premium/luxury vehicles. As such it does offer many of the luxury materials seen in the Genesis line of vehicles such as diamond stitched and perforated leather along with matt-open pore wood inserts.

Also, the drivers display/cluster and center display units are integrated into a single horizontal unit that is similar in theme to what Hyundai used in their new Ioniq 5 BEV.

Hyundai's Palisade localized the use of diamond and perforated leather onto the upper seats creating a luxury 'focal point' for their clean interior feeling.

Two display units are integrated, but not into a horizontal single plane, as seen in the Ioniq 5.

A full digital cluster with camera lane displays and a HUD is used on both the Hyundai Palisade and Kia Telluride.

In the center/floor console, there's a pushbutton gear selector (everything old is new again!), creating a very clean low profile approach for their switchgear. This enhances the Palisades near-luxury target by minimizing and protrusions toward the driver or passenger in the front compartment.

Storage and utility are a critical functional aspect of the 7-passenger SUV, with cubbies and bins available in and under the armrest. This separation of hidden vs. visible storage further enhances the near-luxury placement of the Palisade for Hyundai.

Of particular note, the grouping and integration of the 2nd and 3rd row folding switches into a single panel accessed from the rear creates a very clear, clean and functional aesthetic. Other automakers have this feature but place these switches where the traditional manually operated levers would be (left and right-side panels). Grouping them together creates a more convenient experience for the user.

Matte-finished, open-pore finished wood trim that integrated the door panels and instrument panels and the diamond stitched/perforated leather trim is used in all 3 rows of the vehicle…

…while also enabling the functionality required for 7 passengers and their stuff.

Kia Telluride

Kia, with its very different market positioning, has placed the Telluride as a more adventurous near-off-road vehicle with an aggressive/blocky aesthetic along with a more traditional approach to materials and functions.

The digital cluster and center display are separate elements along with a traditional binnacle and soft instrument panel cover.

This contrasts with the Palisade by having the matt-open pore wood trim in its traditional placement integrating the HVAC ducts while the Palisade incorporates it behind its displays and into the door panels.

Another key differentiator is the floor/tunnel console. With a more 'off-road' focused theme, the console uses a traditional protruding gear selector lever while also incorporating large grab handles for both the driver and passenger instead of the smooth integrated execution seen in the Palisade.

This use of protruding elements can be seen in the center display executions and four-wheel drive switching.

Storage solutions are also not hidden as in the Palisade. Accessibility is prioritized for the Telluride which include charging points, hooks and pockets for electronic devices.

Trim cover solutions also have their unique decorative element but do not carry over to the 3rd row thematically showing the cost/function priority of the Telluride over the Palisade.

These corporate twins have now become the state-of-the-art target vehicles for the 7-passenger SUV in 2021.

News Mobility

_Car interiors Unplugged

NEWS MOBILITY

QUALCOMM'S 2019 AUTOMOTIVE COCKPIT PLATFORM

24. UX applied, a matter of choice_

(this story is part of an ongoing series introducing automotive interiors as an evolution of our habitat)

Car interiors are dictated evermore by graphic interfaces. UX development is about enabling choices. A 'hello' in Helvetica is not the same if written in Bodoni, while in Times New Roman, it can be as unremarkable as absent. From Vogue's well balanced, strong, solid and vertical type to New York subway's versatile fond, a coating of 'written' emotions crusts our surroundings. While 'mad men' (*Madison Avenue NY)*, where possessed by selling image, they merged semantics of written language, art and motion picture, unbeknownst to them, and shifted communication into a new type. From 'Cowboy' letters to glossy 'candy' and heavy metal gothic fonds, typography became storytelling. An instant message that can cut through city noise and reach our emotions, a short of multi-sensory emotional explosion. From our homes to our cars, we 'consumed' typeface way before kilobytes. This living type of graphic feedback is a product industrially designed to be seen, read and convey meaning. Geometric patterns are universal, more than languages, like a superpower of communication.

The 1984 Olympic Games was the first time ever, a machine interface was publicly tested. The push-button telephone was conceived and implemented to reach diverse populations from around the world. The successful attempt consisted on putting together, under one applied idea, all participating cultures and languages. That was the beginning of somewhat a common dialect addressed through specific tasks *(1984 Olympic message system: a test of behavioral principles of system design).*

From then to today's UX, a new challenge emerged: the most important advancement in restoring social intimacy is referring to the emotional aspect of communication such as intonation, facial expression or body language that a text can hardly represent. In addition, with the tremendous ability of smartphones to transmit images, images lost their power. In an attempt to fill this gap, Emojis became the fastest growing language ever. Our brains create a new processing pattern 'listening' on what lays beyond language. Enhanced working memory is a derivate of the capacity to visualize and handle graphic symbols. In the physical world, there is an aspect of randomness that serves the experience. In the digital world instead, every single aspect of the delivery is designed and coded, condensed into a single screen interface,

making digital products more standard than physical ones. The challenge however lays further down the road.

The experience we create digitally defines the type of data that we are going to collect. Any data we collect, codes the following generation of products. The temptation is obvious: doing more (of the same) leading into infinite updates. It establishes a kind of joint-dot-globalness, a fragmentation of a narrative and then, the need of a novel object to put together a new one narrative. What if we were to use this information in order to give control to the 'users' over their own data. Rather than obstructing us from human behavior, it is about overcoming the choice overload, enabling each one of us to foster decisions in shorter time frames for better choices. Visual data, embedded in our products, is the most efficient language to enable choice. The outcome can dissolve or strengthen any physical product. We are entering a new era, a new type of literacy with multifaceted challenges.

Dyslexia does not occur to society without alphabet. Equally, UX does not come without a price. From balloon-race graphic diagrams to pie-charts and mosaics, skyscrapers, mountains and valleys, information has a magnetic quality and addiction. There is definitely something unthreatening about the beauty of data on important matters in the sense that it is better to participate to its interpretation instead of just being told. Digital interface graphics become the universal connection from our car to our house and to any place through a screen. Car Interiors are far more data intense than smartphones and Web versus Software is like distribution before benefit, thus accessing user experience before use. We cannot be implementing this immense digital superpower just to regenerate proven models, instead it is time to prioritize the human aspect.

_to be continued…

_____*INDUSTRIOUS__*

Kia-Uber Pact To Foster EVs In 20 European Markets

NEWS MOBILITY

KIA E-SOUL (IMAGE : KIA)

Uber and Kia Europe are teaming up to offer drivers in 20 European markets deals on buying, leasing, financing or renting Kia's e-Niro and e-Soul, the latest move by the ride-hailing giant to achieve its emissions goals.

Kia e-Soul was considered as a family vehicle, and it's boxy body makes it consistent with a smaller London Taxi.

Uber has committed to being a zero-emission mobility platform across Europe by 2030, and hopes to get up to 30,000 Uber drivers into Kia's BEV range by then. Kia is the latest in Uber's collection of automakers offering its drivers discounted rates on electric cars. In May, Uber also announced a partnership with EV manufacturer Arrival to create a purpose-built electric car for ride-hail drivers, and in September 2020, Uber partnered with GM to give Canadian and American drivers discounts to the all-electric Chevrolet Bolt.

To keep up with regulation, Uber is also targeting to have more than 100,000 electric vehicles across its European platform by 2025 and 50 per cent of miles driven in Amsterdam, Berlin, Brussels, Lisbon, London, Madrid and Paris to be in zero-emissions vehicles.

Kia product plan includes 11 new BEV by 2026, and this strategy will help them to get these cars more popular.

In UK, Kia is giving drivers a discount of around 8 per cent on its vehicles to finance, when Nissan gives 13 per cent, and even Hyundai 22 per cent.

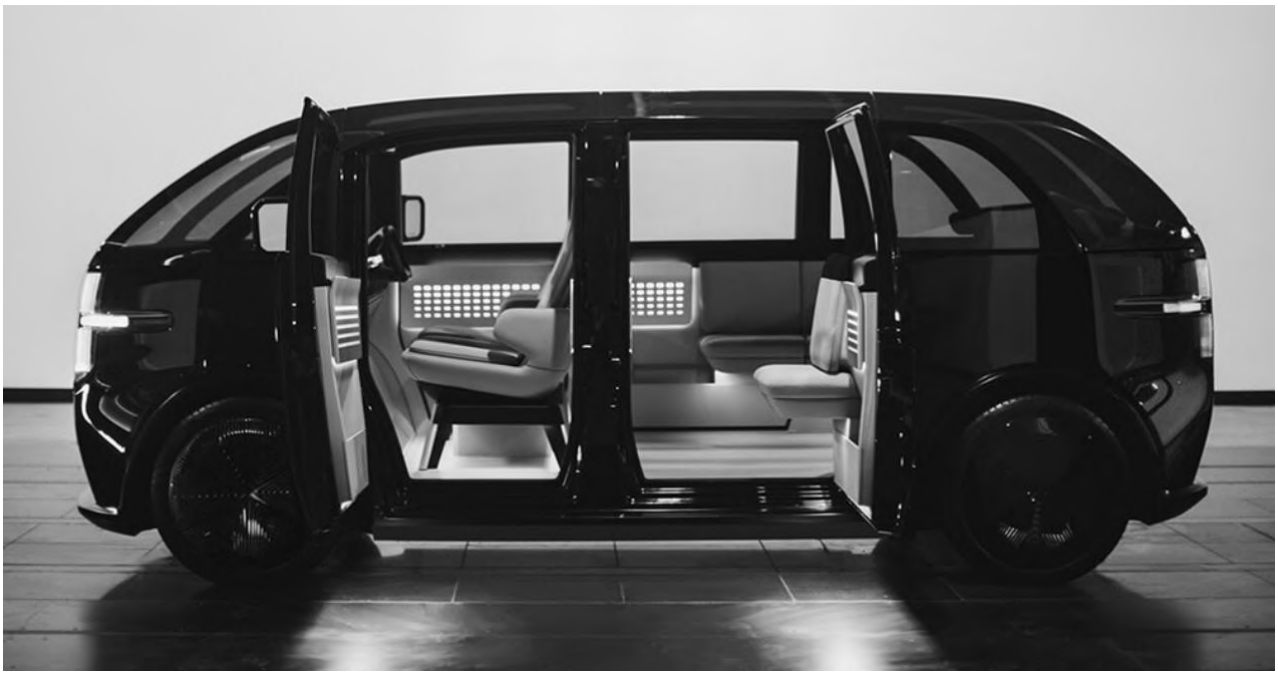
However, it seems drivers are taking advantage of the discounts and other incentives, like 5% financing interest rates and the Clean Air Fee, which collects 3p (4¢) per ride to put toward the cost of an EV and has saved London drivers an average of £3,000 (€3,500), according to the company.

Uber also plans to continue expansion of Uber Green, which allows riders to request a lower emissions vehicle and drivers to get a reduced 15 per cent service fee for each Uber Green trip, across Europe to 60 cities by the end of the year.

General News

Nedcar To Build Canoo Vehicles

GENERAL NEWS



EV startup Canoo, based in Torrance, California, has chosen VDL Nedcar in Born, Netherlands, to build the Canoo Lifestyle Vehicle. The build will start with up to 1,000 units for both the European and U.S. markets in 2022, with a target of 15,000 units in 2023.

Canoo says their arrangement with Nedcar will allow them to deliver vehicles to customers while they build a factory in Oklahoma. The deal is a boost for Nedcar, which was told late last year that its contract to make BMW and Mini models at its factory in Born, Netherlands, would end in 2023.

In 2019 Nedcar built 175,000 cars for BMW, down from 210,000 in 2018, a record year, according to the company. The facility currently builds the Mini Countryman, including the plug-in hybrid variant, Mini Cabrio and BMW X1. Nedcar has a long and diversified history; it started in the '60s as DAF, became Volvo in the '70s, Volvo/Mitsubishi in 1991, Mitsubishi only in 2001, and VDL in 2012; VDL is a diversified industry group producing car assembly, bus, coach, and finished products and supply.

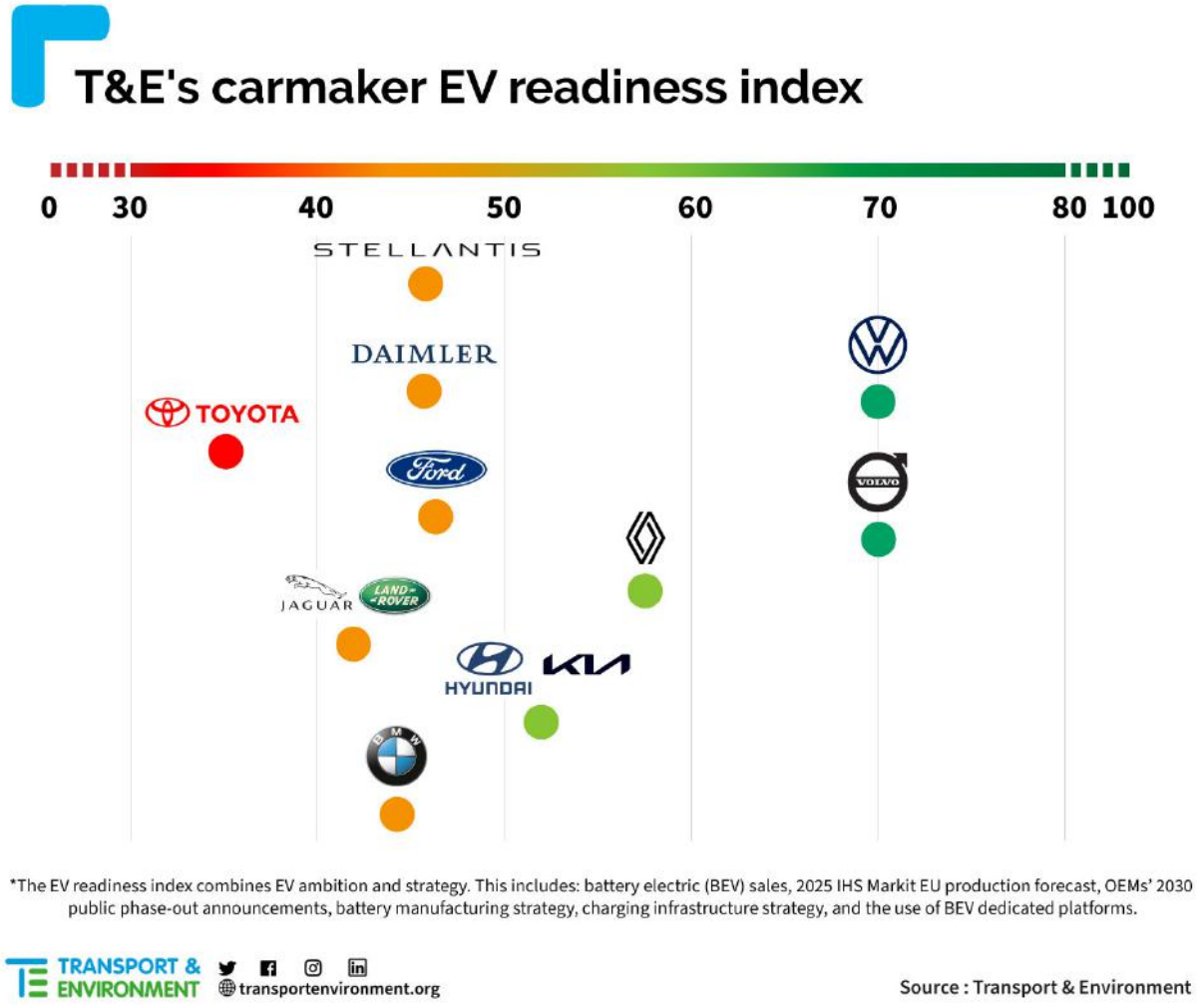
Nedcar CEO John van Soerland recently told Automotive News Europe that U.S.-based EV startups were showing interest in using the Dutch company's plant.

Canoo plans to deliver their first units of the Lifestyle Vehicle to customers by the end of 2022, followed by a delivery vehicle and a pickup truck.

"This strategic partnership will enable us to deliver vehicles to market while we build our Phase 2 factory in Oklahoma," Aquila said in a statement. "It also strongly positions us for geographic expansion in Europe and builds a lasting relationship with VDL Group of companies."

Volvo, VW On Track To Electrify On Time

GENERAL NEWS



Transport & Environment's (T&E) is a is an European umbrella for NGOs working in the field of transport and the environment, promoting sustainable transport in Europe, with a vision of a zero-emission mobility system that is affordable and has minimal impacts on our health, climate and environment.

Volvo Cars and Volkswagen are the only major carmakers ready to switch to electric in line with Europe's net zero climate target, according to new analysis they did.

T&E's ranking of the readiness of 10 major automakers in Europe to transition to EV by 2030, shows there are big differences in ambition and quality of their plans. Volkswagen and Volvo Cars have aggressive and credible strategies. Others like Ford have an ambitious phase-out target but lack a robust plan to get there. Stellantis, Daimler, BMW, Jaguar Land Rover, and Toyota rank the worst with low short-term BEV sales, no ambitious phase-out targets, no clear industrial strategy, and an over-reliance in the case of BMW, Daimler and Toyota on hybrids.

According to the same report, BEV production in the EU27 is expected to increase from around 1 million units in 2021 (7.4 per cent of production), to 3.3 million units in 2025 (24.2 per cent) and surpass sales of cars with an ICE in 2030 with 6.7 million (50.2 per cent).

PHEVs are expected to peak at 1.6 million units in 2026 (12 per cent of total car production) and then stagnate throughout the second half of the decade.

Previous analysis by T&E showed that in 2016, carmakers failed on their collective target of selling 3.6 per cent electric cars, achieving less than half of that.

To ensure automakers ramp up the production of affordable electric cars in time to decarbonize by mid-century, European regulators need to set binding car CO_2 targets in the next decade leading to two-thirds of new cars being fully electric by 2030 and all new cars in 2035, says T&E. With current plans, BEV sales are likely to be at least 10 percentage points lower than they need to be in 2030.