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Weekly Newsletter

DVN Interior

NEWSLETTER #247

Editorial

Voice Assistants Now Integral In Auto HMI

In-vehicle voice assistants are much better than they used to be, and much more prevalent—a significant shift in how we interact with our cars. Voice control can boost safety by helping drivers focus more on the road, and less on fiddling with touchscreen menus and sub-menus. Drivers can manage navigation, entertainment, and climate control without taking their hands off the wheel. And more, advanced voice assistants can recognize individual voices and preferences, providing more tailored driving experience.

That's what we look at in this week's in-depth. Voice assistants are performing even better in a more mastered interior sound environment, especially in EVs. This week's news includes silk materials with sound suppressing capabilities, and super-slim speakers creating new car audio system solutions.

The next DVN Interior Workshop will be on 8-9 April in Köln, Germany. You'll find an update of the **docket** in today's newsletter as well as on the **website**. Watch for more information as we finalize and fine-tune the lecture lineup and exhibitions. Registration is open, so **come sign up!**

CES report is now available here, it is an extensive document, summarizing all DVN reports there, including Interiors, don't miss it!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Voice Assistants: An HMI Revolution

By Olimpia Migliore, DVN Interior Consultant

In-vehicle voice assistance systems were a highlight of CES this year, with several tech companies introducing their innovations. SoundHound unveiled the first ever in-vehicle voice commerce ecosystem, Honda and Sony Honda Mobility introduced the Afeela 1 with an interactive AI voice agent, BMW showed their Intelligent Personal Assistant powered by Alexa Custom Assistant, and most automakers and suppliers are racing to offer the customer the ultimate experience in voice-controlled HMI.

Let's look at how voice-controlled HMI has been evolving, what challenges remain, and how AI is accelerating the development of such systems.

A bit of voice-assistant history

In the 1990s, early speech recognition technology led to the creation of basic in-car voice control systems, allowing limited commands like phone calls and climate control, but with low accuracy and high user frustration. The 2000s saw significant advancements, notably in 2004 with Honda's voice-controlled navigation system and Ford's SYNC in 2007, which expanded and improved voice control for phone calls, media, and more.

The 2010s marked a transformative shift with the introduction of smartphone assistants like Siri and Google Assistant, which car manufacturers began integrating into vehicles around 2015. By the late 2010s, improvements in NLP (natural language processing) allowed more versatile interactions.

Today's in-car voice assistants are focused on personalization and connectivity. They learn user preferences and integrate with smart home systems. The real revolution in the development of voice assistant systems has been touched off by AI-powered systems.

HMI basics

CONTINENTAL IMAGE

An interesting study, Application of Voice Interaction in Automotive Human Machine Interface Experience Design (by Huang & Huang of Huazhong University of Science and Technology Wuhan) suggests the future of HMI design should focus on creating a seamless, scenario-basedsystem that links various functions and minimizes driver distraction .

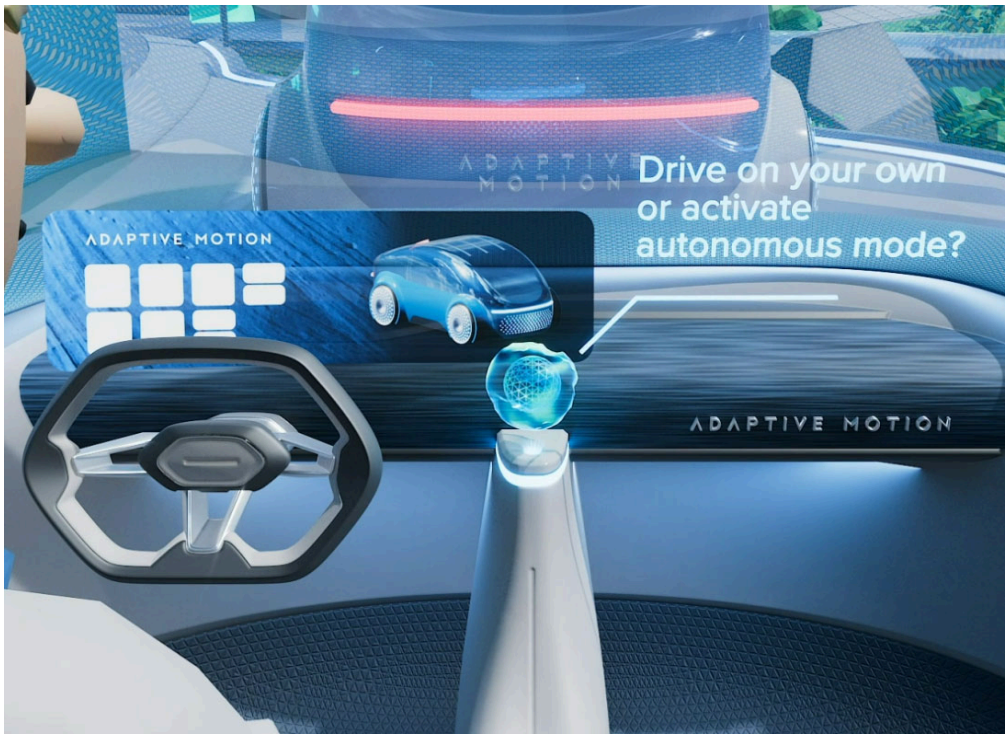
HMI, in a sense, can be interpreted as a series of driving tasks. The primary tasks in driving involve car control and monitoring road hazards, while secondary tasks like radio control or phone dialing demand more visual attention. The key difference between driving tasks lies in the degree of visual and manual interaction required. From a safety and accessibility standpoint, tasks that rely mainly on manual operations are considered safer because they minimize visual distraction. However, the rise of infotainment systems in cars has led to an increase in visual-oriented tasks, making the in-car information system more complex. The challenge for automotive HMI design is to balance providing better interactive experience with ensuring safety within this increasingly complex system.

Scenario-based HMI

HMI design based on scenario tasks involves the application and cooperation of different interactive channels. A certain interactive channel can be used as a main channel, combining with another interactive channel, such as voice + gesture or voice + button. Multichannel interactive interface integrates voice interaction, touch screen interaction, space somatosensory interaction, eye movement interaction, and other interactive modes. It provides feedback to the user through multiple sensory channels, to provide more intuitive and natural interaction. It reduces the burden of excessive visual and auditory information processing during driving, and balances the information to avoid overloading any one sensory channel.

Voice-activated HMI

Appropriate technology allows to increase efficiency and ease of use, particularly through voice interaction, which is seen as a key technology in the IOT era and has created a brand-new scenario. Voice interaction can provide simple, accurate, and safe operations without distracting the driver. It helps people communicate with machines in a natural chat mode, without navingating a wall of buttons or reading and scrolling endless menus and sub-sub-submenus on touchscreens, the unsafety of which is a decreasingly-secret open secret. The machine, for its part, is configured to listen and speak, and to create an increasingly convincing simulation of understanding and thinking.



Usability principles and design elements

As the University of Wuhan study highlights, there are some important factor to consider in designing voice interaction for HMI applications. These include:

- The application determining the content and form of the dialogue between people. A detailed description of all roles, situations and form of human machine information exchange in the process of driving.
- Clarify the mapping functions and operational tasks. When users face different task goals, voice design is the process of constantly understanding the semantic function or operating task semantics, the form and expression of voice interaction.
- Understanding the users and problem domain. Psychological model and emotional state of the user should be understood as much as possible. The feedback after the operation must meet the expectation of the user.

There are also issues related to testing and setting up voice assistants, such as:

- The acoustic environment can be affected by vehicle speed, number of occupants, HVAC settings and other audio sources.
- Road noise is a significant factor in the performance of voice control systems, as well as other sources such as transmission and engine vibrations.

Most of these problems can be overcome by using a library of pre-recorded audio speech files collected from human subjects in a controlled audio environment and at different speeds.

Automation testing platforms can shorten development cycles and increase product quality. For example, Nextgen's ATAM Connect solution can select test files and check the voice assistant output response against each input command. The system tests connected products using standard HMI user interfaces, just like the end user, improving the end user experience.

VUI (voice user interfaces)

Voice-controlled systems could not exist without voice user interfaces, which enable user to interact with their in-car voice assistant.

StarSenior Conversational UX Designer Elisabeth Juergenssays her company's "expertise and extensive training in both design and linguistics allow us to create in-car digital assistants that are functional, intuitive and empathetic. We believe that every interaction between the driver and their in-car assistant should feel as natural as conversing with a human companion, without the need for drivers adjusting their speech patterns".

VUI, to be successful, needs to be human-centric. They must be able to recognize nuances of human speech, including accents, dialects, and emotional cues. They need to capture mood and intentions, to adapt to personality and cultural background of the user.

The role of generative AI

Most of the latest voice assistant systems have an AI element, which enables more natural, personalized, and lifelike interactions between a driver and a vehicle. AI helps to address the cultural sensitivity issues, which was a major shortcoming of previous systems without AI.

Star is a digital-solutions company. Their experts emphasize that AI voice assistants can be continuously updated throughout the life of a vehicle, something not possible with physical controls and possible only in a limited way with touchscreen interfaces. Moreover, AI VUI can collect passenger data to customize the system according to user preferences and behaviors, and can create additional revenue streams. This last point raises invasion-of-privacy concerns, best addressed by the automaker.

AI models are not risk-free, of course. They can amplify biases in the data—and there are many—which can offend users. Too much of that can damage an automaker's brand image, which is a factor to consider when deciding whether to develop a proprietary solution or farm it out.

Introducing third-party platforms can expedite development time and take advantage of established ecosystems, offering users familiar interfaces and functionalities. But some companies prefer to develop their own system, reinforcing their brand identity—Mercedes and MINI are examples with built in-car OS integrated in their infotainment ecosystem. Other makers, like Volvo, Polestar, and Renault, are using Android Automotive OS, benefiting from its well-known and extensive app ecosystem.

NIO IMAGE

AI-powered systems can do things traditional voice assistants can't, including:

- work with complex assignments ("find me a restaurant offering fusion food with parking and outdoor seating")
- use real-time data to dynamically adjust routes, considering factors like traffic, weather, and personal preferences
- monitor vehicle systems and provide notification about them
- program charging-safe routes for EVs and book charging stations

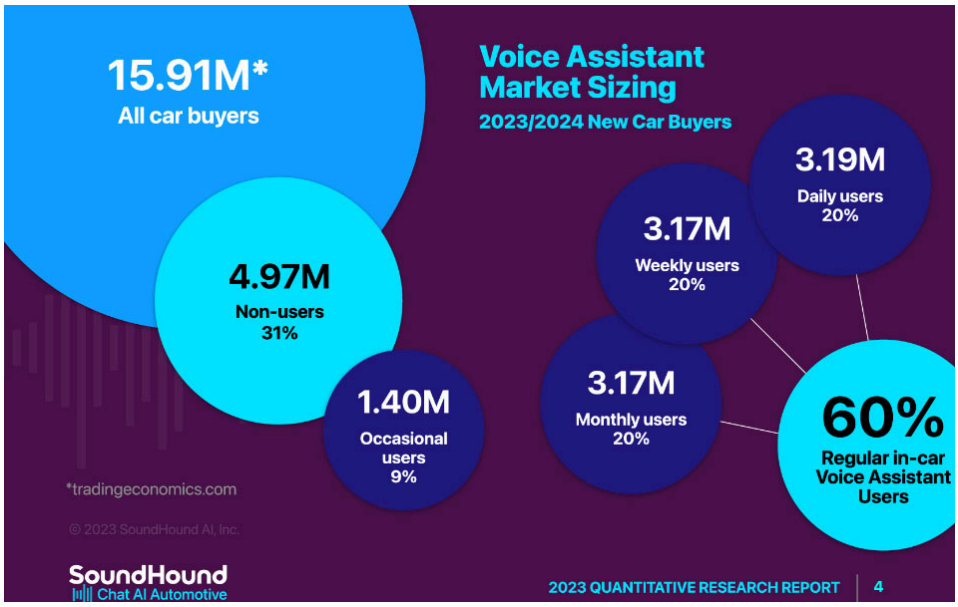
- adjust the in-car light and sound environment to suit the system's interpretation of driver and passenger mood
- collect data from the DMS and adjust the in-cabin conditions to support the driver
- Provide 24/7 support to customers
  …and more to come soon.

CONTINENTAL IMAGE

The market is dominated by tech giants introducing generative AI voice assistants which, by dint of the large database available to the tech giants, automakers are struggling to match.

SoundHound

SoundHound, a major leader in voice assistant technology, showed at CES 2025 the first ever in-vehicle voice commerce platform. It will let drivers and passengers place an order and make payments seamlessly, and then navigate to the nearest pickup location, all directly from a car's infotainment system and completely hands-free. SoundHound has also published a white paper with insights on market data for voice assistants, confirming that this technology is becoming state-of-the-art in every vehicle class.



Usage Trends

Weekly Drivers

87% of weekly drivers who have a voice assistant have used it

50% of weekly drivers who have a voice assistant use it every week

37% of weekly drivers who have a voice assistant use it every day

Usage Barriers

Infrequent and Non-Voice AI Users

48% **don't use in-vehicle voice AI because of inertia** (used to not having it, prefer other interface)

32% **don't use in-car voice AI because of product issues** (slow, doesn't understand me, unhelpful, etc.)

11% **don't use in-car voice AI because they don't know how to use it**

Generative AI Feature Importance

	Phone Calls	Navigation	Bluetooth	Time To Destination	Tire Pressure	Texting	Radio	Find Gas / Charging	Local Search	Weather	AC/Heat	Door Locks
Very Important	62%	68%	66%	48%	51%	50%	46%	44%	38%	36%	37%	42%
Somewhat Important	33%	25%	27%	39%	34%	34%	35%	36%	42%	42%	39%	31%
Important	94%	93%	93%	87%	85%	84%	81%	80%	79%	78%	76%	74%

Apple's Siri and **Google** Assistant, already integrated through CarPlay and Android Auto (respectively), are becoming more sophisticated, using AI to parse driver commands, deliver naturalistic speech responses, and seamlessly connect with broader ecosystems such as smart homes. With access to virtually infinite consumer data like location, calendars, and browsing history, Apple and Google can offer deeply personalized and powerful user experiences.

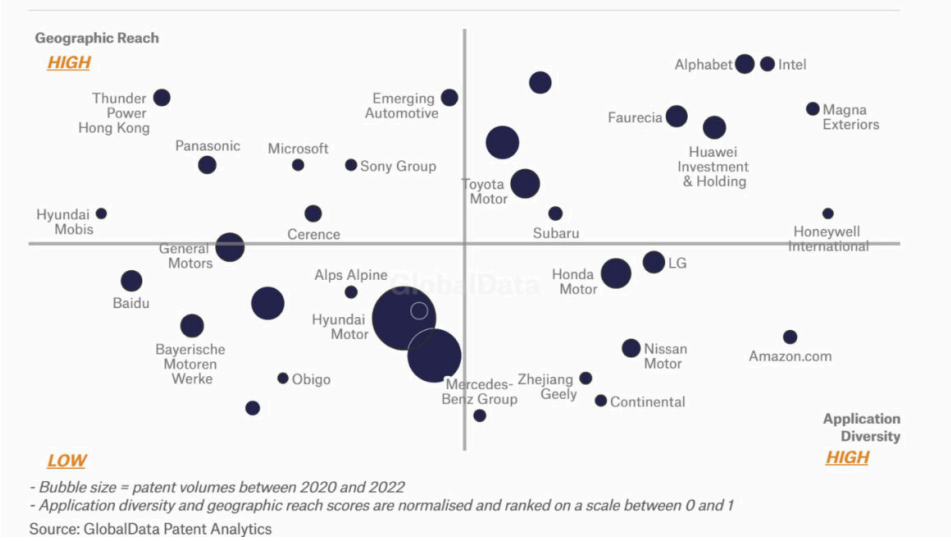
Cerence's CaLLM (Cerence Automotive Large Language Model) and CaLLM Edge are proprietary automotive large and small language models.

TomTom and **Microsoft** have developed a fully integrated, AI-powered conversational automotive assistant that enables more sophisticated voice interaction with infotainment, location search, and vehicle command systems.

Amazon and **BMW** showed a voice assistant combining Alexa with large language models (LLMs) and vehicle-relevant data. BMW powers their new Intelligent Personal Assistant with Alexa Custom Assistant.

Proprietary systems

In terms of patents registered, Hyundai-Kia has the most patents filed in this field, followed by Ford, Porsche, and GM.



Examples from CES 2025

SoundHound and Lucid's New Voice Assistant

Lucid launched the Lucid Assistant, developed in partnership with SoundHound, which leverages generative AI technology for a hands-free drive experience.

The new voice assistant is powered by SoundHound Chat , the voice platform that was the first into full production with a voice assistant that integrates the latest generative AI technology. This integration will give drivers access to a voice assistant with interactive knowledge discovery, real-time data, and effortless in-vehicle controls.

Now live and available to Lucid Air owners, the Lucid Assistant responds to the wake words “Hey Lucid”. Drivers and passengers can ask questions in a natural and conversational way to receive fast, accurate responses through SoundHound’s technology. This technology ensures that the assistant selects the correct response from the most appropriate domain—whether that’s an answer powered by generative AI, or real-time questions about weather, sports, stocks and more.

The voice assistant lets users access Lucid’s full car manual and can provide answers to almost any question about the vehicle. Drivers can also use voice to control features such as navigation, and many of the Lucid Assistant features and functions can also be accessed without needing a cellular connection.

When processing queries, the SoundHound system uses a proprietary approach which the makers claim massively reduces the risk of AI hallucinations—misleading, wrong, and unpredictable responses which are a real problem with LLMs. The assistant is available in English, Spanish, French, Arabic, German, and Dutch, with additional languages coming soon.

Far-Field Voice Capture

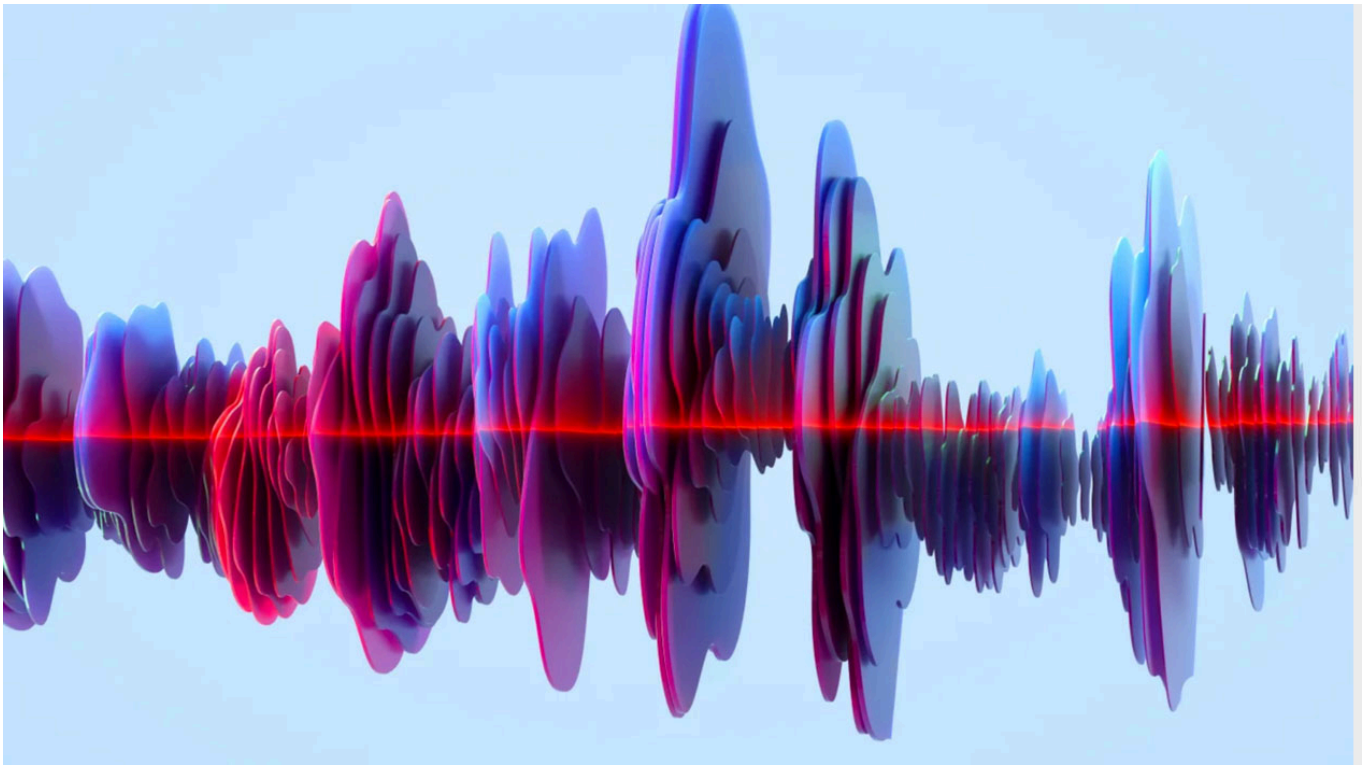
Voice control is an enduring quest, looking for hands-free functionality, good for both safety and convenience. Far-field voice capture allows drivers to interact with in-car systems for navigation, phone calls, or media control without taking their hands off the wheel or eyes off the road.

In this context, far-field technology's ability to distinguish between the driver's voice and other background sounds, such as road noise, music, or conversations among passengers, becomes essential. This enhances the reliability and responsiveness of voice assistants. Ark Electronics USA has created Ark X Laboratories to deliver voice experience to the market. Their next generation of advanced, high performance far-field voice capture solutions, featuring Cirrus Logic, Sensory and NXP technologies, are Amazon pre-qualified and production-ready. This provides voice-enabled IoT products and smart devices.

Interior News

Sound Suppressing Silk for Quieter Interiors

INTERIOR NEWS



GETTY IMAGE

DVN Interior recently published The Sound of Silence, about the difficulty to reduce noise in the in-cabin environment, especially in cars where noise coming from outside is predominant. The usual measures, absorbing and damping, seem to have reached their limits, and noise cancelling is still not the ultimate solution. Maybe AI will help us in the future.

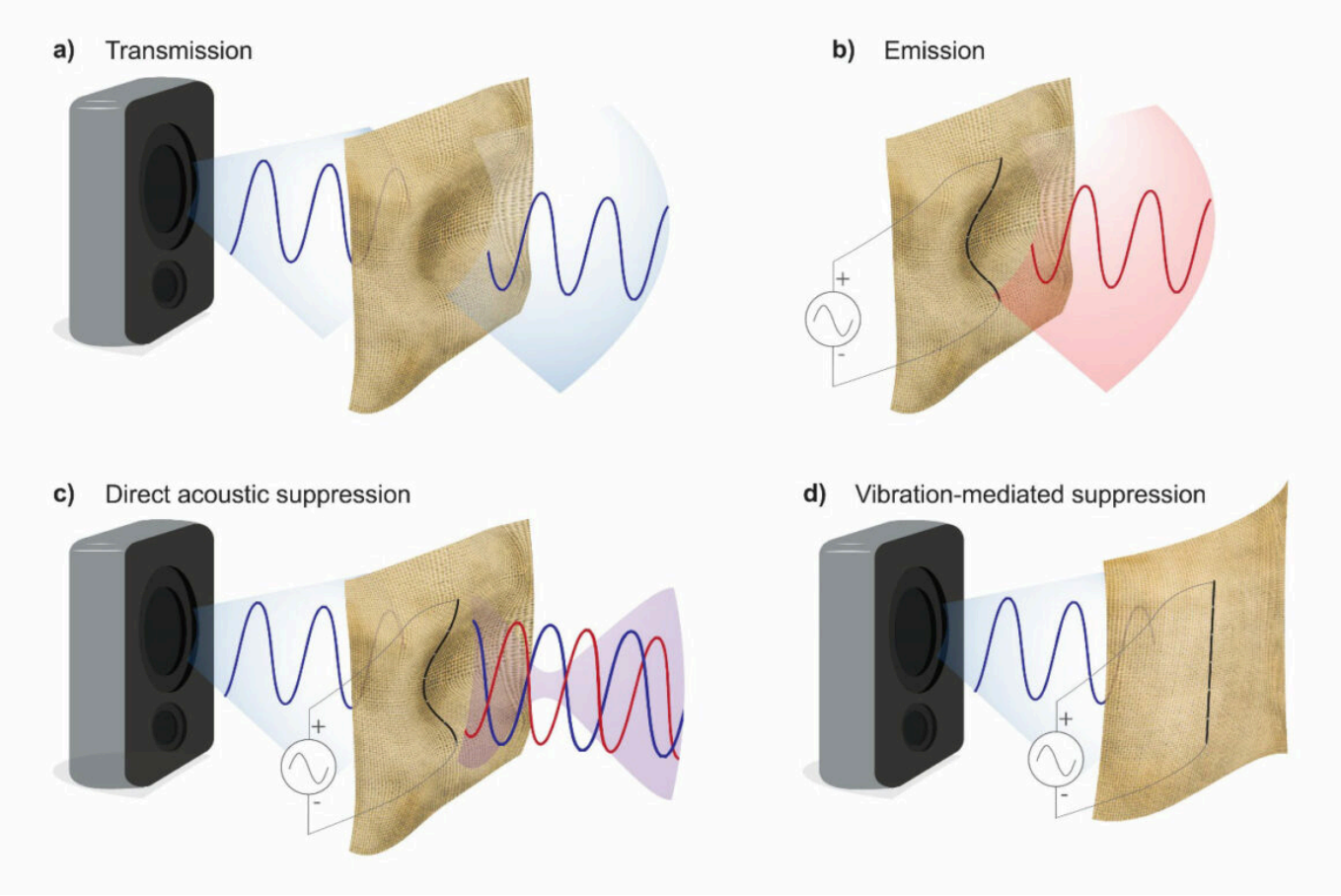
But in the meantime, scientists might have found a solution that could soon be integrated in car interiors. An interdisciplinary collaboration of researchers including MIT developed a sound-suppressing silk fabric that could be used to create quiet spaces.

The pool of researchers, including graduate students at the Rhode Island School of Design to understand fabric structure, scientists at the University of Wisconsin at Madison conducting simulations, researchers at Case Western Reserve University characterizing materials, and chemical engineers in the Smith Group at MIT using their expertise in gas membrane separation to measure airflow through the fabric.

The silk fabric, barely thicker than a human hair, contains a special fiber that vibrates when a voltage is applied to it. The researchers leveraged those vibrations to suppress sound in two different ways.

In one, the vibrating fabric generates sound waves that interfere with an unwanted noise to cancel it out, similar to noise-cancelling headphones, which work well in a small space like your ears but do not work in large enclosures like rooms or planes.

In the other, more surprising technique, the fabric is held still to suppress vibrations that are key to the transmission of sound. This prevents noise being transmitted through the fabric and quiets the volume beyond. This second approach allows for noise reduction in much larger spaces like rooms or cars.



MIT IMAGE, COURTESY OF THE RESEARCHERS

The researchers found that holding the fabric still causes sound to be reflected by the fabric, resulting in a thin piece of silk that reflects sound like a mirror does with light.

Their experiments also revealed that both the mechanical properties of a fabric and the size of its pores affect the efficiency of sound generation. While silk and muslin have similar mechanical properties, the smaller pore sizes of silk make it a better fabric loudspeaker.

But the effective pore size also depends on the frequency of sound waves. If the frequency is low enough, even a fabric with relatively large pores could function effectively, says Grace Yang, one of the scientists working at the project.

When they tested the silk fabric in direct suppression mode, the researchers found that it could significantly reduce the volume of sounds up to 65 decibels (about as loud as enthusiastic human conversation). In vibration-mediated suppression mode, the fabric could reduce sound transmission up to 75 per cent.

The researchers want to explore the use of their fabric to block sound of multiple frequencies. This would likely require complex signal processing and additional electronics.

In addition, they want to further study the architecture of the fabric to see how changing things like the number of piezoelectric fibres, the direction in which they are sewn, or the applied voltages could improve performance.

“There are a lot of knobs we can turn to make this sound-suppressing fabric really effective. We want to get people thinking about controlling structural vibrations to suppress sound. This is just the beginning,” says Yang.

Integration of this silk fabric into car interiors, where the fabrics cover between 20 and 40 per cent of the total surface, could significantly improve noise control and help creating quieter in-vehicle environments.

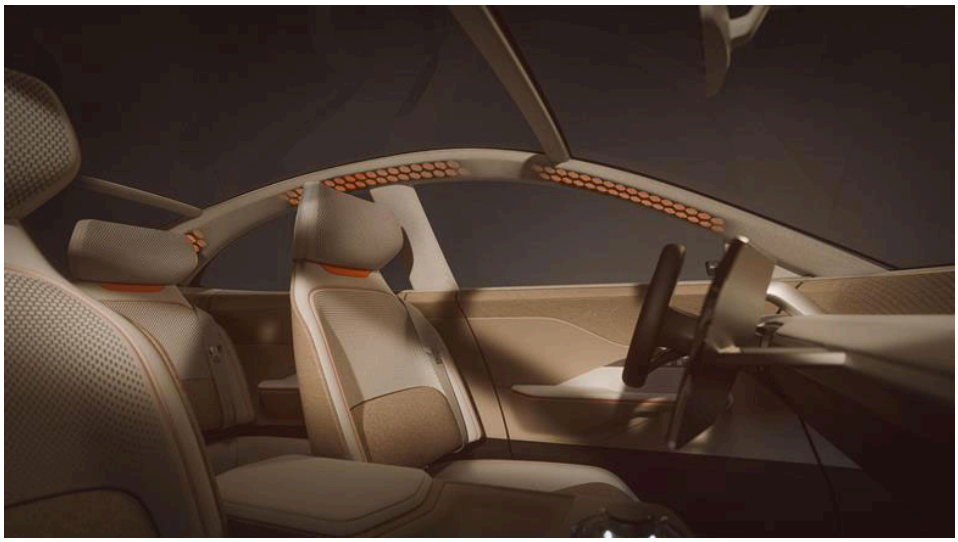
Warwick's Super-Slim Speakers

INTERIOR NEWS

WARWICK ACOUSTICS IMAGE

Speaker systems are a good example of how design strategies can differ from brand to brand and model to model. Some celebrate the technology with decorative metal covers placed in the passengers' view. This is expensive high-end technology and should not be hidden, so goes the thinking. Others take an opposite approach, seamlessly integrating speakers and wrapping them in fabric for a minimalist feel. Not a visual mess, but a laborious process.

In both cases, the unavoidable mass of hardware is a hindrance to the design teams: It takes up space, adds weight, and can dictate the shape of the door panel or dashboard.



WARWICK ACOUSTICS IMAGE

British company Warwick Acoustics has used their wafer-thin technology, originally used in high-end headphones, and teamed up with studio Crankos to explore new possibilities. The above rendering shows the electrostatic loudspeakers integrated into a curved roof edge rail.

Harman's Auto Development Software Innovations

INTERIOR NEWS

HARMAN IMAGE

Harman Automotive has launched two new products: Ready CQuence Loop and Ready Link Marketplace. Both are designed to help automotive manufacturers, suppliers and developers accelerate automotive software development, improve in-vehicle products, and create new revenue streams.

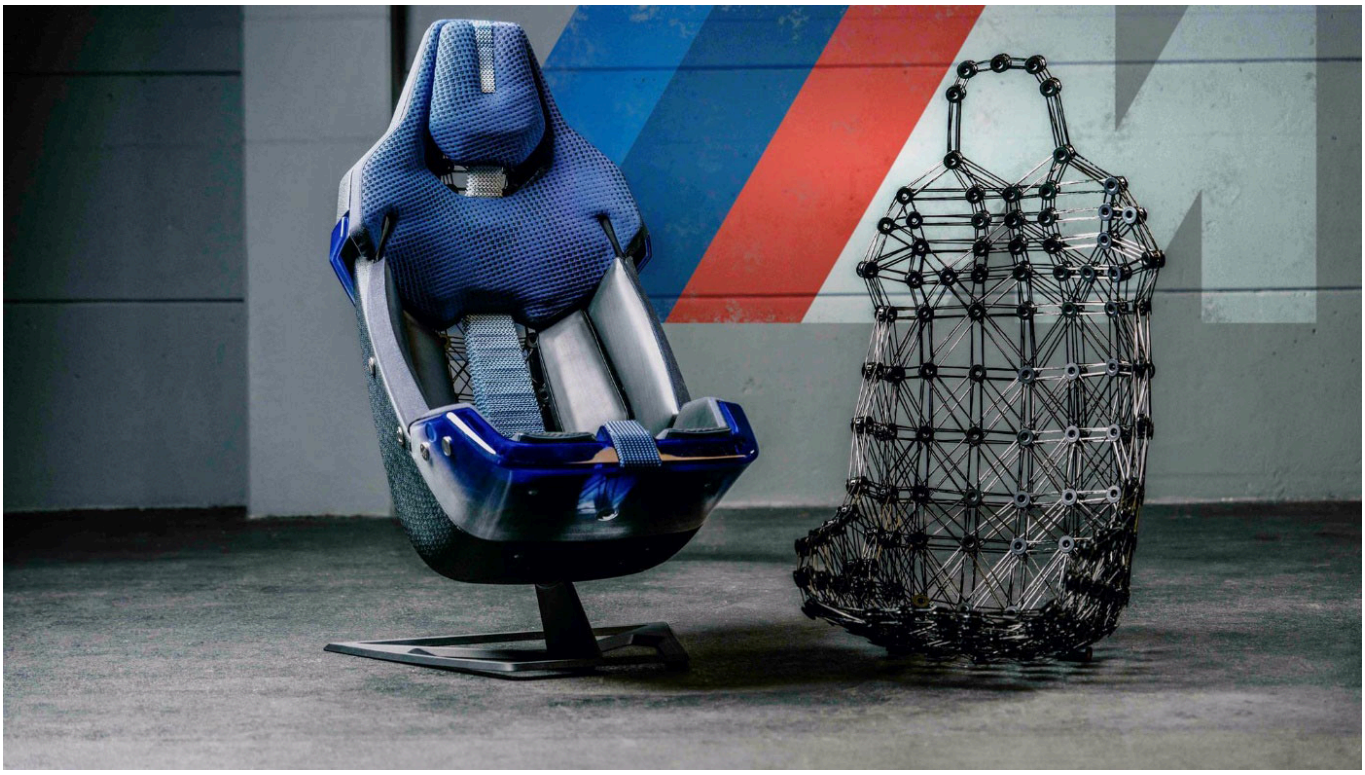
Ready CQuence Loop is a SDV toolchain that increases developer productivity and enables faster delivery of new vehicle features by providing a virtual environment. It provides automakers with a single point of entry for developing and testing vehicle software stacks, while Harman manages the infrastructure. Harman says development and validation costs will be lower with Ready CQuence Loop and that it offers APIs that enable third-party vendors to extend Ready CQuence Loop with their toolchain-related workloads.

Ready Link Marketplace is a new vehicle experience with cloud services. It is a unified digital commerce platform that connects car manufacturers, developers and users. It enables car manufacturers to offer customized apps, services and vehicle features. Harman says this unified digital commerce platform can offer industry-leading content with simplified integration and control, while opening up monetization opportunities.

Heiko Huettel, Vice President of Software Products at Harman, said, "Software is fundamentally changing the way vehicles are built and experienced. With Ready CQuence Loop and Ready Link Marketplace, we aim to make this transformation meaningful for developers, automakers and consumers by focusing on what matters most - making it easier for everyone to deliver and receive better driving experiences".

CMF Experts Pick Projects, Materials

INTERIOR NEWS



BMW IMAGE

A seat design was optimized during the development process through extensive LCA (lifecycle assessment) analyses. Its carbon footprint is 90 per cent lower than a BMW M carbon bucket seat by dint of ultra-lightweight, robot-wound fiber composites and algae-derived polymers. The lower module complexity and the single-origin materials make it easier to recycle the seat at the end of its useful life. Thanks to additive manufacturing, support structures and chemical post-treatments have been eliminated.

Freitag Lab's new Mono [PA6] backpack is made entirely from a single material and is designed for maximum recyclability. Polyamide 6—better known as nylon—is used for all 17 different components, from the cables and buckles to the zippers and water-repellent outer shell. Customers can return the backpack to Freitag at the end of its use so that it can be fully recycled.

Bambu leather is a next generation leather alternative that is 83-per-cent plant-based, non-toxic, and biodegradable in a landfill. Bamboo is known for its strength and resilience, is one of the fastest-growing plants in the world, and can be harvested without destroying the root system. Combining the bamboo fibers with a plant-based, durable top layer makes one-fifth the carbon emissions of traditional cowhide.

The adaptive-fit trend is pushing the boundaries of material innovation and manufacturing processes. Spray-on shoes use a liquid polymer that solidifies on contact and forms a seamless, customized fit directly on the foot. This process combines material application and manufacturing, eliminates waste and offers customized comfort. MIT's 4D knit dress uses advanced knitting techniques with smart materials that respond to body movement and heat, dynamically adjusting the structure of the garment. This approach to CMF design emphasizes adaptive, user-centered products and results in highly personalized and responsive items.

Avatr 12 Interior: Luxury Goes Further

INTERIOR NEWS

Avatr Established in 2018, Avatr is a premium EV brand created through a JV led by Changan Automobile with Huawei, CATL and various Chinese domestic entities. The brand benefits from technological support provided by Huawei and battery technology supplied by CATL.

A new CATL hybrid battery technology promises to reinvent the approach to plug-in hybrid vehicles, by offering vastly more energy capacity than current batteries. Expectations around the Avatr 12 are therefore high. The Avatr design team says from the dashboard to the second row, every detail reflects the intelligence of their cars and the deep connection between user and machine.

The interior features an oval steering wheel, and the central 16” touchscreen dominates the central console. A large horizontal screen across the entire width of the cockpit forms the dashboard.

For the cockpit, imagine an extended dashboard that looks like a spaceship, with floating elements and a large digital window. Plus, there’s an electrochromic glass roof that you can make opaque or transparent in the blink of an eye, weightless seats, and even invisible air vents!

The 16” HD display and 100° electric adjustment allow everyone to have the best viewing angle. The HarmonyOS 4.0 smart cockpit system provides access to a cornucopia of videos, music, games, and other content. The Avatr 12 offers intelligent interconnection and voice control with the central control screen.

The front seats have 16-way electric adjustment with zero-pressure lying position that puts the heart and knees at the same level, and the muscles throughout the body are completely relaxed, allowing for peaceful sleep. They also have ventilation, heating, and massage. Rear seats have heating, ventilation, and an SPA 8-points massage systems. The extended center armrest, 25 cm wide, has a multi-touch screen.

Huawei Audio Vivid Technology with 12 channels realistically simulates a natural environment, vocal depth, and grand scenery in the audio world.

Chevrolet Traverse: Rugged Interior, Open to Subscriptions

INTERIOR NEWS

GM IMAGES

The new Chevy Traverse has been completely redesigned. It now offers a more rugged, trucklike appearance. In the interior, the architecture—with a lower instrument panel and a lower beltline—creates an open, airy feel with high outward visibility.

Standard features include a 17.7” touchscreen, an 11” digital gauge cluster, wireless Apple CarPlay and Android Auto, a Wi-Fi hot spot, satellite radio, a six-speaker Bose audio system, Bluetooth, six USB ports, tri-zone automatic climate control, proximity keyless entry, and pushbutton start.

The Google-based infotainment system is simple to use even while driving, with a few additional physical controls for audio and climate commands.

The three-row seats accommodate eight people when equipped with the second-row bench seat. Models with second-row captain's chairs accommodate seven. third-row seats are folded flat, it offers a best-in-class cargo capacity of 2,700 L.

Textile-upholstered heated front seats and a heated steering wheel come standard. Leather upholstery, power-adjustable front seats, ventilated front seats and heated second-row seats are available.

The first two rows provide plush and supportive seating for adults, and there's plenty of head- and legroom. Even the third row is usable for short stints, though these seats are best left to kids on longer trips.

Everything is wrapped in high-quality seating materials, including available Evotex seating surfaces on the LT and Z71 trims, and leather-appointed first- and second-row seating surfaces in the RS trim.

Selected trim levels benefit from the panoramic dual-glass sunroof that enhances the airy feel of the cabin and provides a more luxurious experience.

Chevrolet is facing a big test of its long-term strategy to build a significant revenue stream from subscriptions. Today, GM’s subscription platform supports services like OnStar, a subsidiary of the company that provides in-vehicle security, emergency services and navigation. It is possible also to get Super Cruise, hands-free driver assistance technology for compatible roads, By 2030, GM predicts 30 million of their vehicles in the U.S. will have connected car technology, a serviceable addressable market of $80bn.

The Design Lounge

Perceived Quality: A Rewarding Interior Asset

THE DESIGN LOUNGE

GM IMAGE

COFFEE CORNER
DVN
Interior

Perceived quality is an amalgamation of several disciplines designed to ensure designs are received by potential buyers and users as intended. The field touches on all sorts of functions, not just fit and finish, but also materials, surfaces, branding, UX, feel and more. It is also a structured review process, which aims to pay attention to any details in parts and assemblies. Ultimate goal is to give a good impression to potential buyers. As the saying goes, there's no second chance to make a good first impression.

A luxury brand, for example, will focus a lot on reducing unwanted rattles, textures, and odors in the interior. An SUV needs to convey a sense of durability, strength and robustness—things don't break after a bumpy ride. Improving the perceived quality of a sports car may require a mix of both worlds; it needs to handle fast corners well, but also look and feel good.

Exterior designers must also pay attention to how the silhouette and surface of their car is received by the market. 'Premium' can mean different things to different people, and certain colors or shapes can evoke undesirable connotations. The trend towards premiumization has meant that virtually all models have an expectation of quality inside and out, leaving less room for error than before.

Electromobility also has an impact, especially on the interior, which is now much quieter without the noise from a combustion engine. Passengers will be much more aware of small inconveniences (and sounds) that they may have previously been unaware of, and this effect will be amplified in vehicles where there is no driver at all.

Autonomous vehicles allow more flexibility and freedom in the interior, but since you no longer have to look at the road, the focus is on the rest of the interior. Poor workmanship or unsightly materials cannot be hidden, and the overall user experience and integration of digital features become crucial. In fact, UX is an important aspect for today's quality specialists.

Touchscreens need to be responsive, easy to use while driving and generally build trust with the driver or passenger. Delayed systems, core functions hidden behind multiple menus and blurred icons should be avoided. Things could get even more complex if screens continue to take up more and more space in the cabin. This also applies to materials, where a new flood of sustainable alternatives is being launched on the market, all of which are supposed to offer the same (or better) quality with improved environmental properties.

Swarovski Crystal: Interior Applications

THE DESIGN LOUNGE

SWAROVSKI MOBILITY IMAGE

The Swarovski Mobility team presented a sparklingly precise switch concept at the Salone del Mobile in Milan at the beginning of the year, introducing themselves to a wider audience.

Swarovski's goal is to give precise crystals pure function, offering pragmatic value and an elevated luxury experience. An often-overlooked aspect of crystal is its durability; the material does not degrade, and its feel and aesthetics exude a high level of luxury.

Thanks to Manufaktur, Swarovski Mobility's prototype factory, the company can produce samples quickly and at short notice. Every crystal produced for the automotive sector is a custom-made product, developed specifically for the intended concept. The process is called 'science and magic'.

This approach is possible by dint of extensive expertise acquired over years of working with the material and consistently applied in the automotive industry. Swarovski is one of the few suppliers to be IATF-certified, and one of the company's biggest areas of investment is innovation. The company enjoys partnering with like-minded automotive companies.

At CES 2024, Swarovski Mobility presented a display concept developed together with Continental, in which the functional touchscreen was housed in a crystal casing. The combination of technological innovation and a compelling luxury aesthetic clearly sums up Swarovski Mobility's creative and strategic direction.

News Mobility

Software, Intelligent Driving Dominate China EV Race

NEWS MOBILITY

BYD IMAGE

Competition in the Chinese market for electric cars will increasingly be decided by software solutions in 2025. A clear indication of this are the many new departments that have been established in the automotive industry in China in recent months for intelligent driving, artificial intelligence, smart cockpits and big data.

BYD, for example, has set up a new department for the research and development of advanced technologies. This includes an AI lab, an AI supercomputing department, and another for big data.

An important focus of the new department is working on AI algorithms, large models and an overarching AI infrastructure for the company's various vehicles. In organizational terms, the new BYD department is part of the BYD Automotive New Technology Research Institute. It will support all of the car company's brands with new solutions for driver assistance and autonomous driving, smart cockpits and other areas in which the integration of software and hardware is crucial.

Several car manufacturers have already adopted the end-to-end (E2E) solution for driving assistance, including Li Auto and Xpeng. E2E is one of the most important trends for intelligent driving in the Chinese car market in the new year.

The more e-cars and hybrids are sold in China, the more important advanced navigation, driver assistance systems from parking to semi-autonomous driving and intelligent cockpits become important unique selling points for car brands that want to survive in the fiercely competitive Chinese market.

Among other things, advanced ADAS and navigation systems are expected to become standard in increasingly affordable e-cars and hybrids in China this year. While truly intelligent driving solutions were mainly found in luxury-class e-cars just a few years ago, they will soon be standard equipment.

BYD wants to introduce high-end smart driving functions within the next two years for all BYD models with a sales price of less than €13,000, as Yang Dongsheng, President of the BYD New Technology Institute, explained in the spring of 2024.

It can be predicted with some certainty that the hectic shuffling and the many new jobs in the R&D departments of Chinese car manufacturers point to a new material and software battle. This is how China's carmakers will fight for market share in 2025.

General News

Is Shenzhen the New Center of China's Automotive Industry?

GENERAL NEWS

BYD IMAGE

Shenzhen can readily be called the Detroit of modern times. Nowhere else in the People's Republic are as many cars built as in Shenzhen.

The city government of Shenzhen has announced that, according to preliminary statistics, more than 2.8 million cars were built there in 2024. This was one million more than in 2023, when Shenzhen held the title of China's № 1 NEV city for the second year in a row. Since last year's huge growth, the city has also been the leader in the construction of cars overall, whether combustion or NEV.

Similar to Detroit, Shenzhen is becoming a symbol of the modern economic power of an entire country in the age of e-mobility. And similar to Ford in the past, it is now BYD, headquartered in Shenzhen, that has overtaken all other manufacturers worldwide with modern production processes and affordable cars for the mass market.

Shenzhen has also specifically promoted the establishment of a complete supply chain of 2,400 companies. These companies are involved in the research and development and production of connected and automated electric cars and hybrids and many of their key components.

Electronics group Huawei manufactures their Harmony Cockpit in Shenzhen. DeepRoute AI, Robosense, ZYT, Inovance Technology and many other new suppliers are based there. The urban area of Shenzhen has actually become a single science and technology cluster for e-mobility and connected driving.

All buses in Shenzhen have been electric since 2017, and all cabs since 2018. The sale of e-cars and hybrids to private customers is being promoted by making it easier to obtain license plates, among other things.

However, artificial incentives are becoming less and less necessary. Because the central government in Beijing ensures low electricity prices across the country, electric driving is significantly cheaper than using fossil fuels. Anyone in Shenzhen who commutes 30 kilometers a day to work in an electric car pays around €10 a month. This is why more and more people in Shenzhen are switching to electric or hybrid cars. In the first ten months of last year, the market penetration of NEVs in new sales in the city reached 75 per cent.