Thu, 17 August 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #174

Editorial

Looking At HMI Through Varietal Lenses

BOREAS IMAGE

HMI is a perpetually central topic at DVN Interior, along with lighting; materials, and sustainability. They're converging as technology advances, and that's a central theme of the DVN Interior Deep Dive in a couple of weeks in San Francisco. If you hurry fast, there's still time to **register**.

This week's in-depth report addresses HMI in terms of quantitative research about ergonomics, and users' ability to interact quickly, accurately, intuitively, and safely with buttons and switches versus touchscreens. We look at a system to measure visual and mental distraction while recording how much time each task requires. This kind of research brings dependable data to the debate over physical buttons versus screens.

And there's an unusual perspective on the matter in this week's Coffee Corner, comparing the Harrier aircraft developed in the early 1960s with the VW Golf of 2022, from an HMI standpoint.

The answers to this question mostly lean in one direction—guess which! But as with all other aspects of the vehicle interior, it's much more complex and intricate than a simple good/bad binary. There's so much more to learn and discuss, and that's an excellent reason to **subscribe to DVN-I**. You'll get access to our DVN Interior Newsletter and all its content, plus high-value DVN-I Workshops and Deep Dives. C'mon along and join in!

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

HMI: Physical Buttons, Or Touchscreens?

VW IMAGE

In DVN-Interior News two weeks back, we reported about VW's CEO admitting that removing physical cockpit controls in favor of touchscreens was an error, with examples like the current Volkswagen GTI—potential buyers are on record as shunning it because it almost entirely lacks physical controls.

DVN Interior is constantly publishing news illustrating the trend of screen-dominant (or screen-exclusive) HMI; for example, this in-depth report from last year. What we're talking about here is a major transformation of automotive cockpit and HMI, so let's have a review of recent signals.

Ergonomic Research

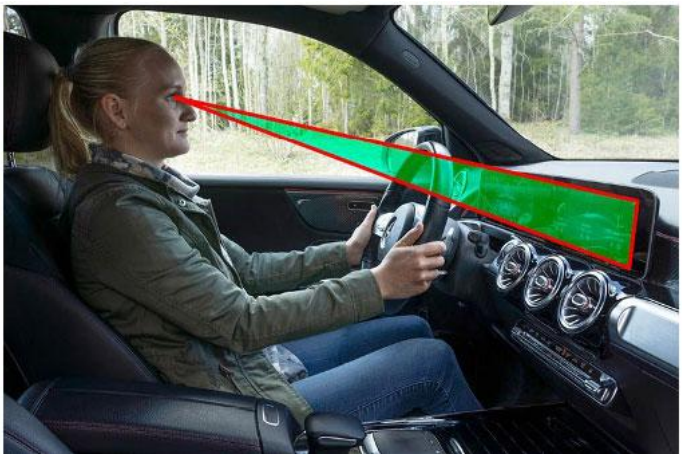
The human-machine interface is how and where the human issues commands to the machine, and the machine provides feedback and information to the human. Of primary importance is how well various kinds of HMI do those tasks. A recent study by Swedish car magazine Vi Bilägare found that it is significantly faster, more intuitive, and less distracting to issue a command by operating a physical control than by working a touchscreen.

Inspiration for today's screen-centric interiors came from smartphones and tablets, accelerated by Elon Musk's dictatorial flights of fancy: Tesla did it, so everyone else went galloping in that same direction, justified by designers in terms of wanting a 'clean' interior with minimal switchgear. Meanwhile, automakers like the idea of integrating as many functions as possible into a touchscreen via firmware which can be updated over time. That way, they save on tooling, production, cataloguing, distribution, and inventory costs for numerous discrete switches.

Vi Bilägare magazine gathered eleven modern cars from different manufacturers at an airfield and measured the time needed for a driver to perform a set list of simple tasks, such as changing the radio station or adjusting the climate control, while driving the car at 110 km/h. The comparison included an older car without a touchscreen, a 17-year-old 2005 Volvo V70. The drivers were given time to get acquainted with the cars and their infotainment systems before the test started.

2005 VOLVO V70 (VOLVO IMAGE)

The test also included measuring the angle at which the driver has to look down to operate the controls. By photographing the same driver in all cars, they found the driver has to lower the line of sight by 56 degrees to view the lower end of the worst screen, ompared to just 20 degrees for the best one.



The test runs included these directives to the drivers:

• Activate the heated seat, increase heater temperature by two degrees, and start the defroster.
• Switch on the radio and adjust the station to a specific channel.
• Reset the trip computer.
• Lower the instrument lighting to the lowest level and turn off the center display.

The Results showed big differences among HMI systems.

By far the easiest car to understand and operate was the **2005 Volvo V70**. The four tasks were handled within ten seconds, during which the car travelled 306 meters at 110 km/h.

MG MARVEL R ELECTRIC; 12.3" VIRTUAL IP AND 19.4" TOUCHSCREEN INFOTAINMENT SYSTEM (MG IMAGE)

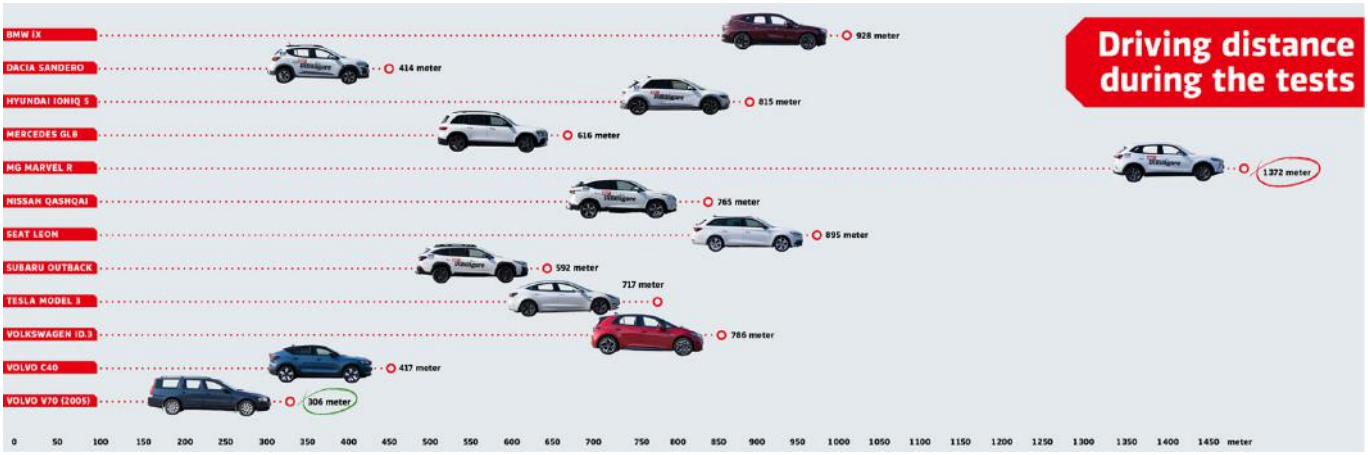
The worst car was the Chinese **MG Marvel R** EV; the driver needed 44.6 seconds before all the tasks were completed, during which the car travelled 1,372 meters—more than four times the Volvo's time and distance during which the driver was distracted from the road. The **BMW iX** and **Seat Leon** were better than the MG, but neither was good; the driver needed almost a kilometer to perform the tasks. That's a long distance not to be focusing on the road and driving task. The **Dacia Sandero** and **Volvo C40** performed well, even with their touchscreens. But those models are relatively sparsely loaded with features to control. Still, Volvo showed with the C40 that a touchscreen doesn't need to be complicated.

Tesla, of course, has always been touchscreen-to-the-max compared to most manufacturers, containing more of the car's features. Even the windshield wipers are controlled through the touchscreen.

They also measured the angle at which the driver must look down to operate the controls. By photographing the same driver in all cars, they find that the driver must lower the line of sight by 56° to view the lower end of the screen. Compare that to only 20° in the Mercedes GLB.

Car	Time to perform four tasks, seconds	Score, 1-5
BMW iX	30.4	4.0
Dacia Sandero	13.5	3.75
Hyundai Ioniq 5	26.7	3.5
Mercedes GLB	20.2	3.25
MG Marvel R	44.9	2.5
Nissan Qashqai	25.1	4.25
Seat Leon	29.3	3.25
Subaru Outback	19.4	4.0
Tesla Model 3	23.5	3.75
Volkswagen ID.3	25.7	2.25
Volvo C40	13.7	3.5
Volvo V70 (2005)	10.0	4.5

VI BILÄGARE IMAGES



The screens in modern cars keep getting bigger. Design teams at most automakers want to eliminate physical buttons and switches to make the car as smartphone-like as possible. But this study and others like it show real controls are far safer. This confirms what Volkswagen CEO Thomas Schäfer said to Autocar: the new Tiguan gets a few more physical controls than some of the other vehicles in the lineup because customers really do not like haptic inputs. Schäfer's views seem well-grounded in consensus: touchscreen control of all and everything really isn't the right way to do it. This isn't a new revelation or a new blip on the radar, either; a road test of the then-new 1967 Imperial, Chrysler's flagship of that time, includes this: ""Control switches (…) are primarily toggles and rolling wheels. Arrangement of controls is such that night adjustments could be made easily without breaking road concentration"—meaning drivers didn't need to look at the controls; they could find, select, and operate them quickly and intuitively by feel. That's the way it should be, for all the obvious reasons (turned into hard data by the likes of the Swedish test). Nevertheless, touchscreens probably aren't going away; the future is most likely a hybrid of touch screens and discrete physical controls.

Visual and Mental distraction

STERLING IMAGE

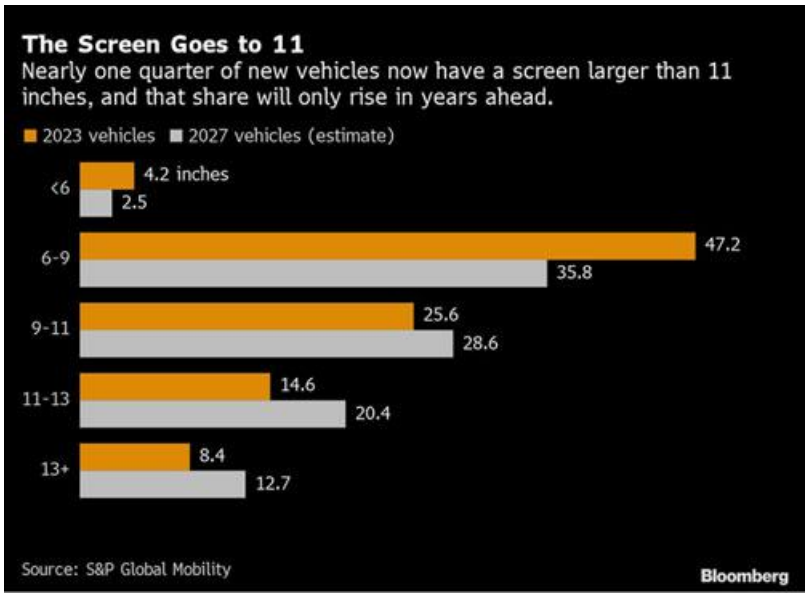
David Strayer, a psychology professor and head of the University of Utah's Applied Cognition Lab, studies how easy it is to accomplish simple tasks—calling a friend, for example—in vehicles. He developed a system to measure visual and mental distraction while recording how much time each task requires. All three factors are then merged into an index score and compared to a threshold of what might be considered safe. Today, the scores for many vehicles breach that level all the time. A complex task, like typing in a destination, often takes double the safety limit.

Strayer says most of what's found in today's cars "is not a usable product", adding that most people his lab talks with think the systems must be safe since they're in cars—an assumption Strayer thinks is reasonable.

Part of the problem is that capability—the list of things can be accomplished—is often at odds with usability. Ever-more-multifunctional touchscreens exert a greater and greater cognitive load on the driver. Centralizing numerous features on a touchscreen makes it easy to woo buyers with showroom demonstrations, but also makes those features dangerously time-consuming and distracting to use once the car's actually been bought.

Market Status

Some 97 per cent of new light vehicles globally have at least one touchscreen, and they are quickly growing in number and size. Almost a quarter of U.S. cars and light trucks now have touchscreens 11" or bigger, according to S&P Global Mobility; a separate screen for passengers is now the norm for luxury vehicles. And all that goes double in EVs; the center stack offers much more space to package bigger and bigger screens.



Part of the thinking, at least early on, was that touch screens would be a more familiar user experience, considering how much time people spend on their smartphones. More recently, they're being leveraged to sell subscription services and promote new features like customized driving modes.

Consumer Reports, J.D. Power, and others have asked tens of thousands of people how they feel about their cars' infotainment systems. Each and every time, the biggest and most capable systems rank near the bottom in terms of satisfaction. Jake Fisher, Consumer Reports' senior director of auto testing, says
Luxury brands rank especially badly, while more basic vehicles, with a more utilitarian approach to technology, garner less unfavorable feedback.

While reversing cameras have been a safety success, it's increasingly obvious the screen race they kickstarted is dangerous. There's ample evidence that interacting with a wide dashboard display while driving is comparably unsafe to fiddling with a smartphone—which is illegal in most civilized places. And that's without even factoring in the degraded visual acuity that goes along with the steady blue glow of night drivers' faces illuminated so brightly by always-on screens that facial features are readily discernible to observers in other cars at night.

New US-based Car Companies

RIVIAN IMAGE

Tesla did it from the beginning, and for awhile there everybody wanted to be just like Tesla. Rivian, Lucid and others put together their own touchscreens and the corresponding stack of coding, thus making a convenient end run around much of the supply chain. Rivian's R1T pickup has a 15.3" touchscreen, and Lucid's Air has a 34-incher. Tesla's Model S still has its 17" panel, but now it tilts from side to side and has higher resolution for playing video games and doing other things not safely compatible with driving an automobile.

Traditional automakers

But safety, schmafety; once automakers perceived as frontrunners do it, everyone else figures they have to do it, too. So legacy automakers, too, are installing more and bigger screens. In 2021, the combustion-engine version of the Ford Mustang came with a 4.2" display. The EV Mustang Mach-E, on the other hand, has a 15.5" screen. In Mercedes-Benz's new EV models, nearly the whole dashboard is covered by the 56-inch-wide Hyperscreen, made of three separate touchscreen displays. And General Motors' Hummer EV has a 13.4" display in the center of the cockpit and another 12.3" panel in front of the driver.

Do customers really want touchscreens? Do they really prefer them to real controls, or at least eventually get used to them? Consistent negative reaction measured by the likes of Consumer Reports and J.D. Power suggests the answer is no, but that isn't how automakers are choosing to see the matter. Stephan Durach, a BMW SVP in charge of user experience, says "Certainly, we can discuss whether [a] touchscreen is the best solution or not, but everyone is used to it. If people see something, they want to touch it, so just make it touchable."

What about safety, though? "We are really cautious about distraction," Durach says. "Our highest priority is eyes on the road and hands on the wheel. We don't even like the saying that a car is an iPhone on wheels".

BMW IX 20 (BMW IMAGE)

BMW's current vehicles, even those with touchscreens, also use a combination of haptic switches, voice control, and gesture control. If the driver wants to turn up the volume in the new iX, for example, they can simply twirl their finger in front of the dashboard. Nevertheless, BMW's top models have screens almost 15 inches big, and the automaker recently integrated YouTube and made a deal to stream content in the i7 sedan, though both features are disabled when the vehicle is moving.

Durach says, "At the end of the day, it's about giving the customers a choice. The screen makes it a little bit easier on one side and complicated on the other side, because you have to decide what you are going to allow and what you're not".

An opposite perspective is heard from Mercedes; they say the giant Hyperscreen can serve as an antidote to distraction. How? Well, the system uses AI to eliminate tedious scrolling. If the driver calls the same person at the same time every week, for example, the screen will prompt them at the appointed hour. "We strive to only show the content our customers want to see to ensure a truly digital luxury experience," says Magnus Oestberg, Mercedes' chief software officer.

MERCEDES-BENZ EQS (MERCEDES IMAGE)

Automakers and suppliers point out that many features now can be activated by voice. But the voice control systems are not necessarily easy to use; they can’t control every function, and they don’t always work as advertised.

Some experts think voice control in cars will catch up to systems like Amazon’s Alexa, while increasingly autonomous cars will require drivers to do far less driving. At that point, travelers may prefer their handheld screens and dashboard displays will shrink or disappear entirely. That's what happened to seatback screens in minivans: they've more or less disappeared, because parents are giving their kids handheld tablets.

Interior News

Hyundai Mobis' New Parabolic Motion Glovebox

INTERIOR NEWS

HYUNDAI MOBIS IMAGES

Hyundai Mobis has a new type of glovebox specifically designed for EVs, first including the Kia EV9. It gives greater glovebox capacity and minimizes the risk of knee collision when the glove box is opened.
They call it the Parabolic Motion Glovebox, and say it's inspired by the overhead luggage bin in commercial airplanes; 'parabolic motion' refers to the parabolic trajectory of the box as it's opened or closed.

Chalk it up as one more way EVs deviate from the design details of combustion-engine vehicles—this glovebox is deliberately designed for EVs. With no engine ahead in front, EVs offer the potential to return some of that space to the passengers, and an expansion of the glovebox storage capacity was a natural.

Traditionally, vehicles typically offer a glovebox capacity of perhaps 5 L; with the parabolic motion approach, Hyundai Mobis has increased the capacity to over 8 L. Usability has been improved, with easier item placement and retrieval—the box (or should we say bin?) remains upright through its entire range of motion, rather than tilting outward when opened and inward when closed. And there's less likelihood of knee collision when the glove box is opened.

The new glovebin, so to speak, originated from an inventive concept which won a gold medal in the supplier's 2021 internal idea contest. Since 2019, Hyundai Mobis has been fostering a culture of voluntary and creative R&D among employees, having already accumulated over 3,200 ideas in the first half of this year.

ZF Passive Safety: Belt and Airbag Work in Tandem

INTERIOR NEWS

ZF IMAGE

ZF has introduced a new seat belt system which moves occupants into an optimal position before a potential collision. At it's core: ZF's ACR8 electromechanical belt tensioner

During a crash, the seat belt and airbag work in tandem as protective systems. The seat belt restrains the upper body initially, and then releases, guiding the occupant towards the airbag.

The system is connected to vehicle sensors and the automatic emergency brake assistant. It adjusts the occupant’s position, holding them securely during the braking maneuver, thus bolstering their protection.

The ACR8 system also acts as a haptic signal transmitter to alert the occupant. It can send signals—in the form of belt vibrations—to awaken drivers if the system detects signs of fatigue. And it induces high-frequency pulsing in the belt to prompt the driver to take control when switching from automated to manual driving.

Automakers can opt for a seat-integrated version requiring only a 60 mm installation depth instead of 82 mm.

Lexus LM Has Business Jet Interior

INTERIOR NEWS

NETCARSHOW IMAGES

The Lexus LM, over five meters long, wraps occupants in a cocoon of lacquer and leather. For utmost privacy, even the chauffeur disappears behind a divider that rises from the center stack at the touch of a button and can be opacified with another.

Its 3-meter wheelbase means there would easily be room for three rows, or even four. But there aren't—just two huge armchairs behind the partition with its inbuilt cupboard and refrigerator compartment.

The vehicle is extremely quiet on the road. Behind the electric curtains in the rear, passengers can focuson the control center—a touchscreen towering between the two seats. They can turn the two captain-type chairs with sewn-in cushions into a recliner, extend their leg rests, and enjoy any of six massage programs.

The Infotainment offers more possibilities than many home systems, and the content is more diverse than the average European could dream of. While streaming services are only slowly entering our cars, the LM—at least in the China-market version—already has all the Chinese video portals on demand in addition to DVD and TV reception, and most social networks as well.

As traffic becomes increasingly dense, cars like the LM are popular with the wealthy; vans like these are becoming business jets on wheels everywhere and are increasingly making converts of those who might formerly have picked up the likes of a Mercedes S-Class. Lexus is launching the LM in more than 60 countries, with European ones and Japan included for the first time—but not in North America.

New Mini Interior Centers On Big Round OLED Screen

INTERIOR NEWS

BMW IMAGES

Mini has already unveiled almost everything about the next-generation Cooper, but the full debut isn't coming until later this year. The latest breadcrumbs to drop include details of audiovisual aspects of the car's cabin.

Mini seems to be especially proud of the round OLED display in the middle of the dashboard—taking over from previous models' round central speedometer. The display is 24 cm (9.44") in diameter, and Mini calls it the industry's first display of this size to feature OLED technology. It will launch with Mini Operating System 9, the latest version of the BMW Group's infotainment software based on an Android Open Source Project (AOSP) software stack.

The new round display is also home to Mini's new cloud-based navigation system, which provides charging-optimized route planning for the EV version. Three-dimensional maps and an 'AI view' are some of the new features. The screen also provides access to the 'Mini Experience Modes': Core, Green, and Go-Kart, each of which has its own specific interface design and additional light and sound effects.

Saying "Hey Mini" activates the new voice assistant called Spike (…the British Bulldog). It provides quick and easy control through voice commands of functions such as navigation, telephone, radio, and temperature. Optional 5G connectivity ensures the new interface can be quickly updated through OTA updates, which could happen several times a year. The high-speed connectivity provides access to the Mini Connected Store where applications can be downloaded, including AirConsole games, video streaming apps, Spotify, and others.

Mini promises 'unmistakable sound' from the audio system in the EVs. This includes new driving sounds in the cabin, a different sound from the outside, different jingles for the different Experience Modes, and 30 new sound signals with information and warning functions.

Mercedes GLE Models Get New Interiors

INTERIOR NEWS

MERCEDES-BENZ IMAGES

For the 2023 GLE and GLE coupé models, Mercedes-Benz has updated standard systems and expanded options packages to provide more individuality for customers.

The GLEs get Mercedes-Benz's latest steering wheel, with touch-sensor surfaces on the horizontal spokes. The driver can use these to operate the steering wheel display and also the central display.

Trim options have been expanded, with the Manufaktur piano-black lacquer flowing lines trim, which was previously only available for the Mercedes-Maybach GLS. If black appointments are chosen, the seats can be upholstered in nappa leather.

There's a Burmester surround-sound audio system with a personal sound setup menu and the Dolby Atmos immersive audio experience. It's got 13 speakers, 13 separate amplifier channels, and a system output of 590 W.

The cars feature the second-generation MBUX (Mercedes-Benz User eXperience) infotainment system; users can control a range of vehicle and comfort functions on the 12.3-inch LCD screens. The central display is operated as a touchscreen and has Apple Car Play and Android Auto wireless connectivity.

Energizing Air Control can also be ordered; it monitors the quality of the cabin air and cleans it with a two-stage filter. Depending on the measurement value, the vehicle will autonomously switch between fresh air and air-recirculation modes.

The Parking Package with 360°camera supports the driver when getting into and out of parallel and perpendicular parking spaces. Another new feature is the 'transparent hood': if the off-road drive program is switched on, the central display shows a virtual view under the front of the vehicle, to make life noticeably easier in steep terrain. Helpful features for towing include Trailer Maneuvering Assist, an updated trailer menu in the central display, and a trailer route planner to find optimized routes when travelling with a trailer.

The Design Lounge

Back to the Basics

THE DESIGN LOUNGE

COFFEE CORNER
DVN
Interior

DVN IMAGE

By Athanassios Tubidis

‘*The ability to take airflow, turn it into thrust and divert it through nozzles to give vertical and backward motion, vertically landing and taking off, from straight aft to straight down and back, able to hover over an air cushion and even remain static for a moment is, just incredible. Many of the aerodynamic functions are enabled by physical cables except the side air-intakes that have no mechanism and open just by gravity once horizontal speed is reduced and inversely, they close by thrust once forward movement is enabled. All functions are acted by physical buttons, switches and levers that are perfectly fitted in the cockpit and prioritized by importance, form, texture, and size, orchestrating one of the most complex moves in 3D space ever, while traveling up to 490 knots and implementing about 21,000 pounds of thrust ... and that is how it works! This is a sample of Individual mobility at its most advanced state And there is no way you can do all that on the simulator…*’

Listening to all this from the museum guide is when I realized that I was at the pilot’s seat, inside the only accessible Hawker Harrier Siddeley T.4 in the world. Its interface to enable the human/pilot performing complex operations, made it into a symbol—or, rather, a mobility avatar. The Gobots character Royal-T and the Transformers Aerialbot named Slingshot, disguise themselves as a Harrier. James Bond used it in 'The Living Daylights' to smuggle KGB defector Georgi Koskov out of Austria, and two Harriers were used in 'True

Lies'. The aircraft was prominent in the latter part of the film, being used by Arnold Schwarzenegger's character to rescue his daughter from terrorists in a Miami highrise and shoot down their helicopter.

After his long experience in the field, aviation pioneer Thomas Sopwith said:

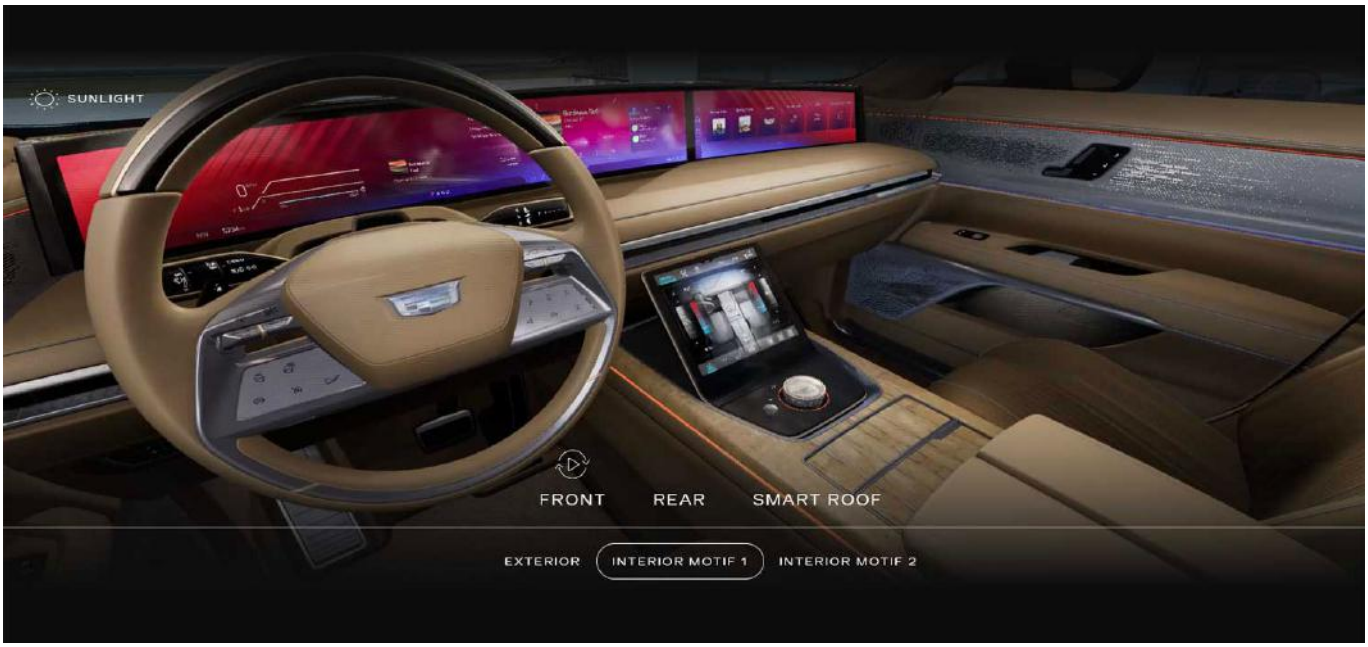
'I still don't believe the Harrier. Think of the millions that have been spent on VTO in America and Russia, and quite a bit in Europe, and yet the only vertical take-off aircraft which you can call a success is the Harrier. When I saw the Harrier hovering and flying backwards under control, I reckoned I'd seen everything. And it's not difficult to fly.'

The world's oldest totally analog (with all controls physical) two-seat Harrier that I visited at the Farnborough Air Museum was instrumental in resolving divisive arguments on the choice of flight and propulsion control and handling-quality criteria. Once developed, it was able to perform ship recoveries in poor visibility, under bad weather at night and then landing on a big slab of British steel in the middle of the ocean under similar weather conditions.

Just a couple of months after my visit to Farnborough, an article was published specifically referring to a much simpler yet largely available transportation device, the Volkswagen Golf GTI. The article was focusing on its HMI, claiming that there are so many digital controls that for a lot of people it doesn't really matter that the car has a better performance than its predecessor. They won't even consider the new GTI (or any number of other new Volkswagens) because it almost entirely lacks physical controls. If you wanted to change the climate control at night, you won't be able to do this quickly because it requires you to use slide controls that aren't even backlit. Accumulated frustration seems to have made its way to VW headquarters and it might be that now the giant automaker is finaly aware of the major mismatch. The brand's CEO Thomas Schäfer stated that new customers don't really like haptic inputs. He then went as far as to say that his predecessor Herbert Diess' decision to go that route "definitely did a lot of damage" to the brand. The Harrier was developed in the early 1960s, introduced in 1969, and retired in 2006, yet some of its variants are still operational to this day. The new Golf GTI was put in production in 2022. Admittedly the unchained investment-trend on anything digital took rapidly over just about any R&D practice, across industries, sweeping on its way basic cognitive notions, creating equally major shortcuts on the development process of car Interiors. For all those who study HMI, I strongly recommend spending a few moments inside that mythical Harrier interior, experiencing a real cognitive display and one of the richest analog-cockpit showcases of all time. It constitutes a live encyclopedia of Human Machine Interface based on forms that not only follow function but also give feedback on the specific function, designed under criteria far more challenging that a center console climate control.

Cadillac Celestiq – Customization to the Max

THE DESIGN LOUNGE



GM IMAGES

Making its formal introduction as a 2024 model, the Cadillac Celestiq offers a variety of top-shelf features, starting with how customizable the car is. A GM note on the topic said the 'bespoke spirit' of the car will be determined by the client's level of curation.

There's a wealth of opportunities for customers to tailor the ultra-luxury sedan to their specific tastes. To start with, it is available in a range of different design themes that include specific colors and materials, providing a solid starting point in the customization process.

Cadillac CMO Melissa Grady Dias says, "Engaged clients and their Celestiq Certified Dealer of choice will be guided through a design consultation process by a Cadillac concierge, dedicated to assisting them with every aspect of their vehicle design journey", and that buyers will have an "opportunity to work with some of the [world's] most talented designers to ensure their vision is completely understood and executed with extreme precision".

The Cadillac Celestiq design inspiration is said to foment a sense of 'repose, in motion and at rest', with a palette of warm colors and 'an intense focus on ultra-luxury minimalism'. Cadillac says "Warmth and peace rest comfortably inside, inviting driver and passenger to share in the sublime ambience".

Inside, the Vale design inspiration adds Camelia Leather, Sheer Gray Leather, Saturn Open Pore Wood, and Acier Stainless Steel speaker covers, which together give the cabin space a natural, almost organic feel—an interesting effect, given the plethora of technology embedded in the vehicle, including all those digital screens and LED lighting elements.

News Mobility

Pony.ai Teams Up with Toyota, GAC, Toyota on Robotaxi

NEWS MOBILITY

DRIVERLESS ROBOTAXI IN SHENZHEN (PONY.AI IMAGE)

Chinese autonomous driving developer Pony.ai held a signing ceremony with Toyota China and GAC Toyota. The three parties announced a joint venture to support the future mass production and large-scale deployment of robotaxis.

The JV, with an investment exceeding C¥1bn (about €127m), will be set up by the end of this year. It will provide a Toyota EV platform, produced by GAC Toyota, for robotaxi use. These vehicles will be equipped with Toyota's redundant systems capable of fully autonomous driving and integrated with Pony.ai's autonomous driving system.

Pony.ai has already demonstrated commercial L^4 robotaxi operations.

In August 2019, Pony.ai and Toyota formed their collaboration in China to jointly promote the development of autonomous driving vehicles for mobility services. The next month, those two companies began their autonomous-driving cooperation project on public roads in China, using Lexus RX vehicles and Pony.ai's autonomous driving system. In April 2023, the Toyota 'Siena Autono-MaaS' vehicles equipped with Pony.ai's sixth-generation L^4 autonomous driving software and hardware system initiated public road testing in Beijing and Guangzhou, marking another significant milestone in the advanced autonomous driving collaboration between Pony.ai and Toyota for mobility services.

Electric Golf Carts as ‘Second Cars’ in the US

NEWS MOBILITY

TURF CAR IMAGES

In recent years a surprising vehicle trend has quietly gained momentum across the US: electric golf carts are becoming a popular choice as 'second cars'.

They're compact, take little power to run, and are versatile, though they don't come anywhere close to meeting safety standards that apply to legitimate cars. Nevertheless, the carts are being used for trips and errands that would normally be taken in a real automobile.

Today’s carts have compact lithium-ion batteries, high-power brushless electric motors, and a bunch of options. Want a lifted electric golf cart with a sound system, or a navigation system? That’s no longer a custom job, you can buy fancy carts right out of the dealer catalog.

This convenience, combined with the growing popularity of local regulations that dozens of cities have passed to legalize golf carts on smaller public roads, has helped many families replace the need for a second car.

Georgia's Peachtree City, not far from Atlanta, is probably one of the most notorious, with tens of thousands of golf carts on the roads. The municipality even removed the golf clubs from its city logo after deciding that it was “more of a golf cart city than a golf city.”

The city allows golf carts to be operated on many of its public roads but also has smaller multi-use paths designed for these small vehicles as well as for bikes and scooters, providing shorter routes and avoiding traffic from larger vehicles.

The affordability of electric golf carts is another factor driving their popularity as second cars. With prices significantly lower than the average car, and operating costs that are just a fraction of those for cars, electric carts present an economically appealing alternative.

Many residents still own a typical car for longer trips but opt to use their golf carts as much as possible in town. This US trend fits with the resurgence of quadricycle in Europe with vehicles such as Fiat Topolino, Citroën Ami and Opel Rocks-e. (**see DVN Interior coverage**)

General News

Saab's Ghost Rises Again as EV Company

GENERAL NEWS

NEVS IMAGE

National Electric Vehicle Sweden (NEVS) was born out of the bankruptcy of Saab in 2012. Now they're set to begin assembly of their first production model, a sedan in same segment as the BMW i5 and Mercedes-Benz EQE, according to reports in Swedish media.

NEVS' EV production plans are said to center around their Emily GT prototype: a 4-door sedan developed in secret and first revealed this past April, planned to be assembled in Trollhättan, Sweden, the home of Saab production from 1949 to 2013.

The Emily GT was developed by a team of former Saab and NEVS engineers with funding from Evergrande. They also created an autonomous robotaxi concept called PONS.

Ttela, a Swedish newspaper, quotes with the owner of the former Saab factory, Svante Andersson, as saying the long-dormant factory will be in "full activity" later this year. It claims part of the site will be used for vehicle production by the new owners of NEVS, while other areas will be occupied by unrelated companies.

NEVS was owned by Chinese real estate and health services company Evergrande, who put it up for sale eight months ago. There's some dispute over who holds the intellectual property rights to the Emily GT. Despite being developed by NEVS, Evergrande claims to have largely funded its development. The Chinese company, which recently reported losses of $81bn over the past two years, has established its own EV company in China, called Hengchi.

Despite NEVS' strong links with Saab, in 2016 the car company was denied the use of the name by the Swedish defense and aerospace company that owns the rights to the Saab brand, Saab AB. Saab continues to operate globally, developing and producing anti-tank weapons, submarines and fighter jets.

Toyota Boshoku Takes Over Shiroki Indonesia

GENERAL NEWS

TOYOTA BOSHOKU IMAGE

Aisin Shiroki, a subsidiary of Aisin Corporation, has transferred part of the shares of their own subsidiary Shiroki Indonesia (SID) to TBA, (Toyota Boshoku Asia), a subsidiary of Toyota Boshoku. This in fulfilling a share purchase agreement to make SID a subsidiary of TBA.

In November 2023, TBAS will acquire 80 per cent of SID's shares from Aisin Shroki, and then the remaining 20 per cent of the shares by the end of 2025 to make SID a wholly-owned subsidiary—all this assuming the necessary procedures and responses are completed in each country.

Shiroki Indonesia has about 300 employees and produces seat mechanisms such as recliners and adjusters. Their umbrella company Shiroki develops, manufactures, and sells a variety of automotive components. One category is functional interior parts such as seat mechanisms, window regulators, and door locks. Also doorframes, moldings, and other exterior parts. Shiroki has been expanding their production and supply infrastructure in the rapidly-growing markets of emerging countries, and they're continuing to make investments to enlarge and upgrade their global R&D and manufacturing operations.