DVN-I
Automotive Interior

Thu, 7 October 2021 Weekly Newsletter **NEWSLETTER #81**

Editorial

More Screens, More Distractions: More Safety Needed

CITROËN CXPERIENCE CONCEPT (CITROËN IMAGE)

This week's in-depth article looks at the trend of having vehicles more and more defined through screens—their size, number, image definition, and seamless integration into the cabin. While they bring great new opportunity for enhanced HMI with voice and gesture control, they also cater for non-driving related activities (not to mention intricate controls and nested layers of menus), so they can also bring great risks of distraction.

So, new safety safeguards are needed. Driver Monitoring Systems, as we've been explaining a lot lately, will alert the driver whenever they aren't paying enough attention to the road. But what other solutions might exist? Well… maybe regulation to limit activities which would need more than a few seconds to execute. Fine as far as electronics built into the car might go, but smart handheld and wearable devices can easily be brought or worn into a vehicle. So this idea is probably a dead end, which means DMS is really the solution.

DVN Interior will continue, as we did during the DVN US Workshop a few weeks ago, to give you all news and reports about DMS technology. And save the date for April 26-27 2022, for next DVN Interior Workshop with an extended session on DMS with the world's leading subject matter experts. Save your seat there by **joining** the DVN Interior community!

Enjoy this week's newsletter, and as always, we'd love to hear from you.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

What Other Than Screens Define Future Vehicle Interiors?

AUDI'S IN-CAR ENTERTAINMENT SYSTEM AS SHOWN AT CES 2019

In-car displays are rapidly and exponentially increasing in number and size. There's even a trend towards extending the screen across the entire dashboard. This will make it easier in the future when cameras are used instead of sideview mirrors. Smartphones and tablets have influenced the demands on displays in all areas of life and significantly increased consumer expectations—so also in cars.

Screens, especially interactive ones, bring an immersive digital experience to the car cabin, with a focus on delivering meaningful information, including to improve safety, to the driver and entertainment content to the passenger(s).

Lavish grilles, chrome and eye-catching exterior styling defined past vehicles. Will huge screens and eye-popping graphics be the tools for defining future vehicles? Is this the new tailfin? Whether or not, strategically weighty questions suggest themselves:

• What will make tomorrow’s screens even more compelling than today's?
• How to minimize distraction while maximizing information throughput?
• What roles will voice technology, HUDs, and personal assistants play?
• Screen arrangement and configuration: how many, how big, and where?
• What will optimal HMIs look like in terms of inputs, outputs, alerts, and so on? How will they best be designed for usability & desirability?
• Overall, what is the best possible user experience at an appropriate cost?

If customers today expect larger and more capable displays within their vehicles, it is not only because of their future user experiences, but also because the screen becomes a statement about their purchase.

Display technology is evolving in step with EV and AV development, as part of the digital transformation pulling technology into the cabin (and vice versa), even if—by showing off status and technology—it ends up being oversized for what is really needed.

Screen(s): What for?

PANASONIC FUTURE COCKPIT (PANASONIC IMAGE)

It starts with display-based instrument clusters; it includes navigation, infotainment, HVAC control, seat adjustments, passenger displays, digital rear- and sideview camera displays, smartphone mirroring, and other uses.

The most common application of in-cabin displays is what is now a traditional cockpit architecture, with a digital instrument cluster and a dedicated center stack display. At the extreme (though rapidly moving into the mainstream) the screen becomes the singular means of accessing all controls, as in Tesla, and covering every surface.

Numerous displays are present in today´s medium- and high-price cars, and there’s a trend to merging several displays into one for a uniform and elegant overall impression. It starts with the combination of the instrument cluster and the central display: The driver sits in front of an integrated display landscape that starts behind the steering wheel and extends to the center console. The nest strategic step is to go further, and to wow users with *more.* More real estate coverage with a broader pillar-to-pillar screen (Byton, Mercedes

Hyperscreen); more image definition, better UX, at the same time as the most efficient and less distracting distribution of information and control for the driver.

Screen And Safety

2019 RAM PICKUP TRUCK (STELLANTIS IMAGE)

Safe driving is the main goal of every car interface designer. Safety is improved by minimizing distraction and by supporting the user. Minimizing distraction means minimizing the time drivers need for any HMI dialog. Turning your attention away from the road for 4-6 seconds at 90 km/h is the same as crossing a football field with your eyes closed.

Touch input is not best solution, because driver needs to reach, in a vibrating environment, and quite often to go down several menus—which requires looking at what they're trying to touch. Multimodality involving voice or gesture is better here. Output should be multimodal as well: not just audio or visual feedback, but audiovisual and/or tactile feedback. Sound *and* sight *and* touch.

As the slightest moment of inattention can be fatal, copying smartphone interfaces is not the solution. The HMI has to be adapted for automotive, and instant interactions. Regulations must address it, but at least in North America, there's no such effort under way.

In this sense, a 3D HMI and/or an HD display are maybe not just nice to have, but essential value creators by reducing time for driver understanding. Same perspective with haptic feedback, which is also helping the driver to quickly understand, without having to shift gaze or focus.

Above all, a DMS (driver monitoring system) is essential to help the driver manage their attention appropriately amidst all the distraction and leisure afforded by increasingly connected, increasingly autonomous vehicles.

Solutions Already On The Roads

As in so many other cases, the innovations start at the top in premium vehicles where cost is not really an issue.

PORSCHE TAYCAN HAS MULTIPLE TOUCHSCREENS (PORSCHE IMAGE)

Porsche's Taycan has a display-heavy experience: four displays, for a cumulative diagonal measured display real estate of 47”, which includes a massive 16.8" curved digital instrument cluster, dual 10.9" center stack and passenger displays, and an 8.4" touch panel HVAC display.

The Byton M-Byte has a monolithic 48” infotainment display called the Byton Stage. It runs almost the entire length of the dashboard and provides access to the M-Byte’s entertainment, and telematics as well as serving as a gauge display for the driver. A tablet on the steering wheel and a duplicate touchpad on the center console allow both the driver and the front-seat passenger to interact with the display.

Tesla's Model 3 has a 15” screen on the dashboard, replacing almost all physical buttons and controls. Whether you want to adjust the cabin temperature, turn on the heated seats, or switch to a different radio station, everything goes through that laptop-sized digital panel. It might not be the safest set up, as the driver has to take their eyes off the road for each interaction. Grope all you want; there are no buttons to be found!

Inside the Range Rover Velar, everything from instruments to infotainment system to the HVAC settings on the center console is digitally presented on high-resolution screens and hidden from view until the ignition is switched on. With multiple displays, and many touch-sensitive controls, it’s kind of hard to keep focus on the road.

AUDI Q4 E-TRON (AUDI IMAGE)

The Audi Q4 E-Tron's focal points of the interior are represented by the standard 10.25” digital driver’s display and the touchscreen available in a standard 10.1” diagonal or an optional larger 11.6” setup. Strong emphasis here is made through HUD on two separate levels, the status section and the augmented reality (AR) section. The information provided by some of the assist systems and the turning arrows of the navigation system as well as its starting points and destinations are visually superimposed in the corresponding place on the real-life outside world as content of the AR section and displayed dynamically. They appear to be floating at a distance of roughly ten meters from the driver.

Moving to HUD

HUD WITH TOUCH FUNCTIONS: FUTURE REALITY?? (ISTOCK IMAGE)

HUDs could be a safer solution, as it gives the driver road view and cluster view in the same sight, with no eye accommodation in between. Will more info be migrating to HUDs in the future?

As we see markets and technologies progressing, we're seeing a trend toward information enhanced through augmented reality, like ADAS information with cars around, or day visual via IR camera on night reality, actual speed overlayed on speed limit, etc.

Beyond the user experience, it represents a lot of software engineering, meaning additional development cost. Is it worthwhile? The more digital it is (screen quality and size, more software), the more expensive it is, the more adapted to wealthy buyers, who tend to be older and less immersed and less comfortable in the digital world in general. What's wrong with this picture?

Bring Your Own Device?

PEUGEOT 5008 WITH CARPLAY (PEUGEOT IMAGE)

BYOD looks like a easy solution for entry level car, especially for younger users who will feel more comfortable with the smartphone. But it’s not good brandwise (Apple or Samsung remaining stronger than the automaker's own brand), and probably unsafe, if not really adapted and integrated into the driving environment.

Display Technology

Vehicle-mounted display devices are usually TFT LCD displays, due to their high performance and relatively low cost. High performance includes typical automotive specifications: wide operating temperature range, vibrationproofing, long durability, etc. However, as the content to be played continues to be enriched, the specifications of automotive LCD panels are also increasing day by day.

The next kind of screens coming to vehicles is expected to be microLED (µLED), which offers microscopic self-emissive inorganic LEDs with high contrast, high brightness, wide color gamut and high pixel density. It is less affected by external light sources than OLED.

Conclusion

Displays are becoming the centerpiece—nay, the masterpiece!—of the car interior. It’s what you see even before entering the vehicle. Beyond its size, which positions the vehicle (as a combustion engine's piston displacement once did), it opens multiple innovations for user interfaces, including touch and gesture control that only make sense with the appropriate display technology:

Whatever new user interface concept starts from the display, the first brick, for future user interface development.

Displays are not reserved exclusively for drivers. There is also a growing market targeting displays designed for passengers; mostly for entertainment applications like rear seat entertainment (see DVN In-Depth June 17, 2021). Whenever display is the entry to new business model, based on content delivery, it applies even more for those who are not driving.

In a future edition, we'll look at supplier technology and product solutions.

Interior News

4th ISELED Conference: October 19, 2021

INTERIOR NEWS

Five years of ISELED—a reason to celebrate at this year's ISELED conference on 19 October 2021, where the status quo and latest developments will be presented.

This year's ISELED conference will take place in a hybrid format, both live and digital. At this event, leading experts will discuss and present topics and trends around automotive lighting as well as visual display concepts. The technology is now not only used in cars, it is also finding its way into other sectors, such as aviation and industrial lighting. The goal of soon breaking the one billion mark for smart digital LEDs is already within reach.

A large premium automaker relies on the ISELED light and sensor network ILaS and will use it in all their vehicles in the future. ILaS is a powerful fieldbus that meets the requirements of tomorrow's light and sensor architectures. At this year's ISELED conference, the first prototypes based on this technology will be presented.

Since 2019, the number of companies in the ISELED Alliance has almost doubled. Today, 40 members are already firmly anchored in the network and will again present numerous products, from LEDs and microcontrollers to system solutions and the corresponding development tools.

The ISELED Alliance is looking forward to welcoming participants to the 4th ISELED conference - participation is free of charge and available online worldwide after registration. Due to Covid-19 regulations, on-site seating is limited and reserved for speakers, exhibiting companies and technical staff. However, the exhibition will be presented online in real time by a camera team

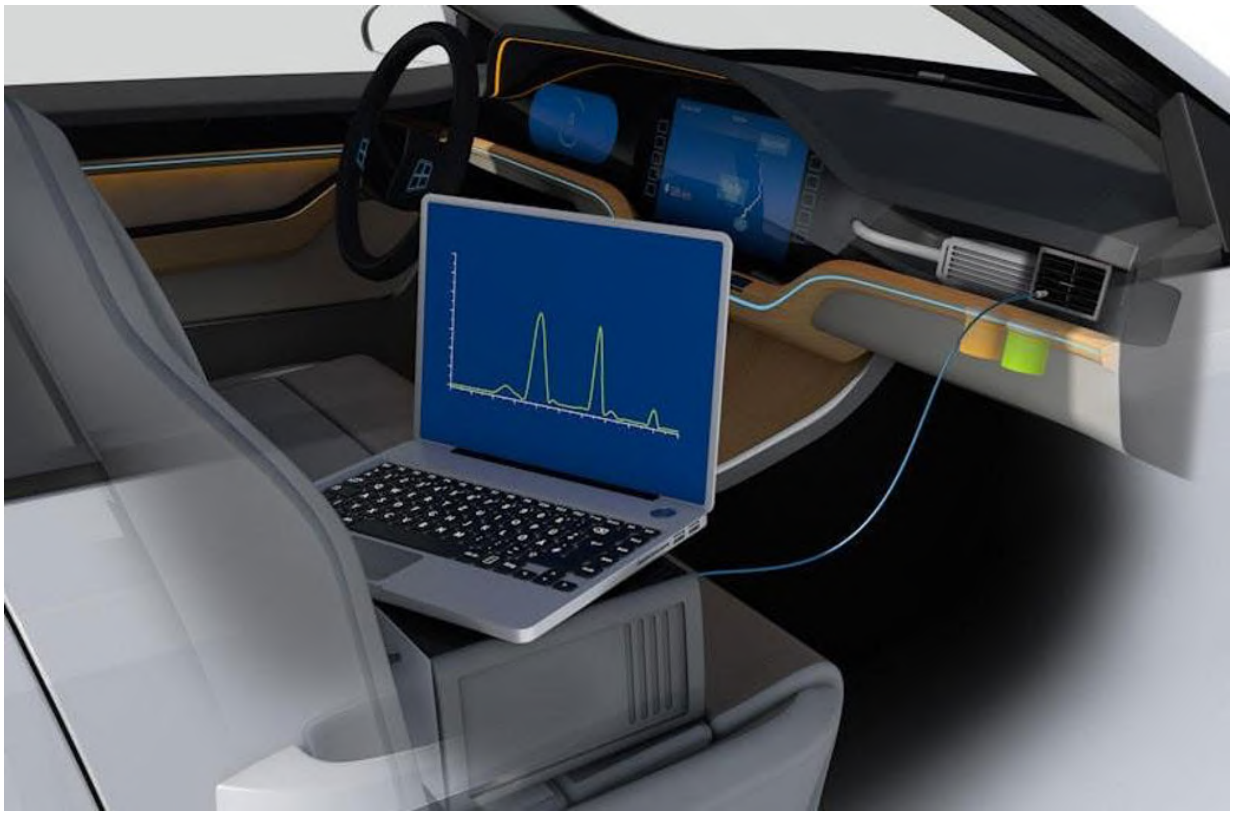
and an interviewer and there is always the possibility to contact the exhibitors online for questions and discussions.

Find further information, docket, and registration information **online**.

Inova Semiconductors s a fabless semiconductor manufacturer headquartered in Munich. The company was founded in 1999 and specializes in the development of state-of-the-art products for gigabit serial data communication. In addition to the successful APIX (Automotive Pixel Link) products—more than 150 million devices—now in their third generation, Inova developed the innovative ISELED technology in 2016 and now offers the first products. **further information**

IAV Measuring System For Indoor Scenting

INTERIOR NEWS



IAV IMAGE

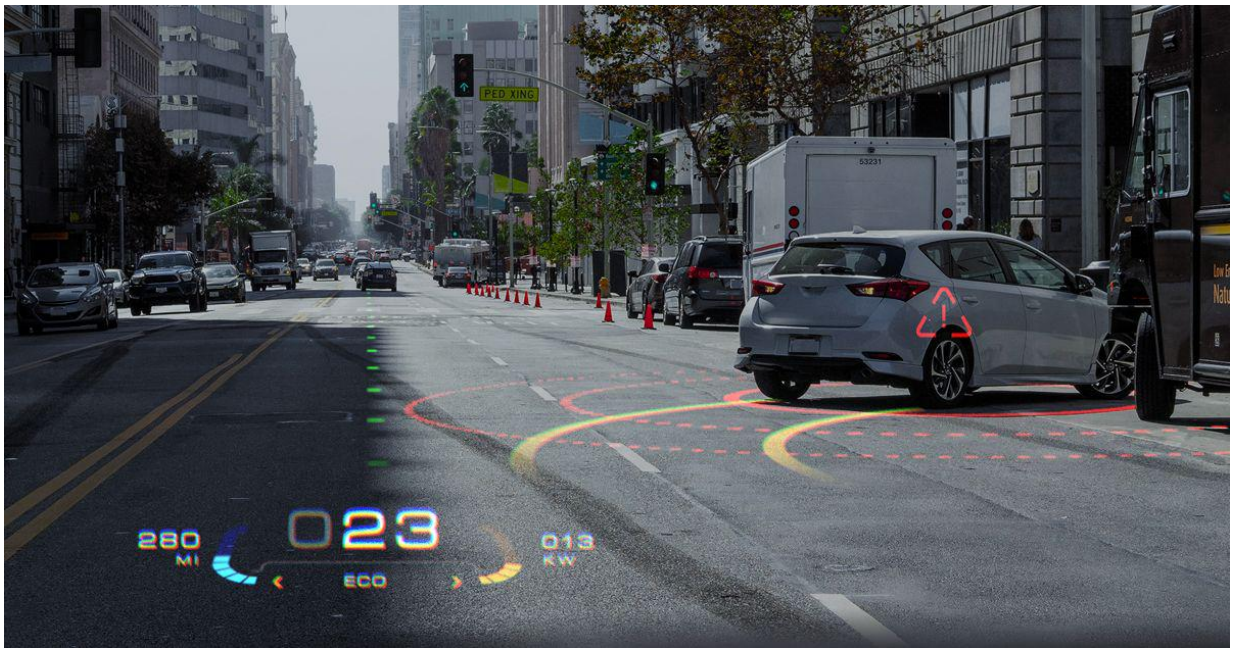
IAV, the Berlin-based automotive engineering services company, has developed a method for measuring the scenting of vehicle cabins more precisely and bringing it into series production more quickly. The tool can be used in almost all means of transport.

Interior fragrance is mainly found in uxury class models, so far. Manufacturers use room scents to create a wellness atmosphere in the interior. Engineering partner IAV has already gained experience in developing the necessary scenting systems, but engineers' noses were used for the application and dosage of scents. Compared to this subjective procedure, IAV has now developed a new measuring method for the application of scent systems.

The mobile "sniffing laboratory" sucks in air at the air outlet in the passenger compartment and delivers its measured values to a connected computer. Inside the device, a sensor detects the concentration and proportion of fragrance molecules in the interior air with high precision in the ppm range (parts per million). "This makes the measurements quantifiable and reproducible," says Dominik Fellner, System Development Team Leader at IAV. The values in real time accelerate development. The overall concept is designed to meet the requirements of both technical development and pre-development.

Holographic AR-HUD With New Glass Material

INTERIOR NEWS



WAYRAY IMAGE

Swiss manufacturer WayRay has developed a holographic augmented reality head-up display and is now cooperating with AGP eGlass. The glazing specialist has developed a new glazing technology for WayRay that brings HOEs (Holographic Optical Elements) onto the windshield. The transparent and thin HOEs can thus seamlessly be integrated into curved laminated glass parts and allow a field of view and distance to the virtual image from 0 m to infinity. It can be integrated at variable depth.

WayRay describes further advantages of its technology over conventional HUD with its projection system volume, field of view, and distance to the virtual image. The add-on Holographic AR Display gives equipment operators an expansive view of their surroundings, eliminating head-turning and distractions to reduce accidents. Combined with precise GPS positioning, the AR system can guide operators through large sites and pinpoint target locations.

The AR user interface can be designed for both drivers and passengers, conventional or commercial vehicles and self-driving cars. Deep Reality Display® could complement or replace the traditional dashboard, adding a new immersive true AR effect with multiple depth plans. Gaming and entertainment are seamlessly built into the real world surrounding the car, creating a unique experience for drivers and passengers. While gaming content for drivers is aimed at keeping the focus on the road, passengers can transform their car ride into an exciting adventure.

AGP eGlass and WayRay have developed a single software platform for different solutions. The AR Rendering Engine (ARRE) acquires data from sensors, computer vision, and maps to calculate vehicle positioning and render

virtual objects in real time. To create a bespoke AR user interface, WayRay develops UI animations for different road scenarios, test the items' behavior in a virtual city, and render AR objects that are accurately positioned to match the real world.

HOLOGRAPHIC AR-HUD FOR VERSATILE TRANSPORT VEHICLES (WAYRAY IMAGE)

GAC Enpulse: Sports Car Concept For Digital Age

INTERIOR NEWS

Designed in LA and built in China, the Enpulse attracted attention when a first version was launched at the 2020 Beijing Auto Show. As with most big Chinese automakers, Guangzhou-based GAC Group seeks to become a global brand. With the new Enpulse concept the company intends to show their vision of a future zero-emission sports car.

Access to the cabin is provided by the electronically activated "sky doors" that open upwards. The GAC Enpulse features a simple and pure interior layout enabling passengers to see the structure and inner workings of the car.

Highlights include the three-spoke steering wheel with high-tech digital screens, minimalist dashboard, racing-inspired seats featuring two different materials, and iridescent light tubular structures. The concept also features a wide front screen with advanced navigation, head-up display, and Eco-friendly interaction capabilities. There's even a new feature called Virtual Battle which uses augmented reality tech to allow the driver to race on a physical track against virtual opponents. It uses 'virtual distance elements' when the Active Distance Assist Distronic function is enabled.

"Competitors can be seen in the HUD and rearview mirror providing a realistic experience while minimizing the dangers of physical interaction," said Matthew Coburn, Chief Creative UIUX, GAC Advanced Design Los Angeles. Furthermore, the on-board facing cameras work in tandem with the exterior camera to create mini-movies and can be used to refine driving skills, analyze the driver's performance on the track or simply record scenic road drives.

Developed using GAC's electric modular platform, the new Enpulse study is said to be production-feasible, though no statement has been issued as to whether or when it will be made.

Inalfa's Central Pop-Up Roof System Integration

INTERIOR NEWS

INALFA IMAGE

Inalfa Roof Systems is based in Venray, Netherlands. Their expertise is in the design, engineering and production of automotive roof systems, and they participated in this year's IAA Mobility 2021, presenting their innovative concept roof with integrated autonomous driving technologies and various interior comfort functionalities all combined in one car demonstrator.

Inalfa developed the new innovative central pop-up roof system that brings more passenger headspace and a large transparent surface for a spacious and light interior in combination with natural ventilation for a healthy interior climate.

The roof system has always been at a key position in the vehicle for both the interior experience to the passengers as well the exterior design contribution to the complete vehicle design. Therefore, the roof will act as a platform for high-end technologies focusing on passenger comfort and safety through its central dome.

Inalfa's roofs can be bottom-loaded (mounted from inside the car) or top loaded (glued from outside the car). A further distinction are exterior sliders versus interior sliders.

Exterior Slider System

Interior Slider System (images: Inalfa)

The exterior slider is a moving roof system including a ventilation function and a slide opening function with the largest possible transparency. The front panel moves over the rear panel or over the roof skin of the vehicle on the outside. The option of adding a rear panel creates a modular setup that can be applied as single or double panel system, which makes this roof easily applicable on different vehicle models. Largest panel surface is 1.2 m, providing optimized daylight opening and maximum headroom space for passengers.

An interior slider (Inalfa says "Inslider") is always a bottom-loaded system and is available with a single or double panel. It provides all features of a sunroof like fresh air, light and thermal comfort. The most standardized roof system available in the smallest dimensions is the TVS (tilt vent slide). This roof system can fit smaller sized vehicles with only one glass panel. The TVS system provides a fresh air option to the vehicle and is also offered in a double panel version where the front panel slides underneath the rear glass panel.

Datwyler: Haptic Feedback Through Electro-Active Polymers

INTERIOR NEWS

ULTRAHAPTICS IMAGE

Datwyler, based in Schattdorf, Switzerland, specialize in high-quality elastomer components in various markets including automotive. They developed what they call EAP (electro-active polymers) to be used for various haptic feedback technology. Haptic feedback is the ability to communicate through touch, is becoming increasingly important in vehicle design.

The age of the conventional switch or button is fast coming to an end, and as components such as flat screen technology are rapidly taking their place, there is still an element from traditional alternatives that serves to make drivers feel more confident in their operation.

When a switch or button is flicked or pressed, there is a sense that what you have asked it to do has been done, by hearing and feeling an audible, tangible ‘click’. A flat screen does not naturally provide this same level of feedback, however through haptic components the driver will literally be able to feel that a command has been received via a pulse or vibration.

Of course, haptic technology is far from restricted to the dashboard. A steering wheel could deliver different signals for different situations, such as an impulse for turning left or right given by the navigation system. A driver’s seat could be linked to the navigation system, vibrating or pulsing when a turn is imminent to avoid the use of voice feedback.

EAP can be used to create a "stacked actuator", too. The technology is based on the creation of small capacitors in a three-layer system, consisting of two

electrodes constructed using conductive materials and a soft electroactive polymer between them.

When voltage is applied to the capacitor the surface electrodes start to move toward each other, which compresses the polymer and thus allows for a small amount of axial movement. These are then created as a stack in order to facilitate additional axial movement, which when voltage is applied means the actuator can be integrated directly into virtually any component that requires actuation without the need for an additional motor or gear.

MIT Study: Autopilot Decreases Driver Attention

INTERIOR NEWS

A new study based on MIT's Advanced Vehicle Technology data found that Tesla's so-called "Autopilot", which is actually just a moderately-capable L^2 system, results in a noticeable decrease in driver attention when activated.

This study involved recording Autopilot drives of Model S and Model X owners over nearly 500,000 miles. It records drivers to understand how they interact with the automated driver-assist features under Tesla's "Autopilot" package.

Then, a group of MIT researchers published a new study called "A model for naturalistic glance behavior around Tesla AP disengagement."

The study found that drivers tend to look at things unrelated to driving—mostly on the center screen—oftener and for longer periods of time when "Autopilot" is activated. Off-road glances were longer with "Autopilot" active than without, and their frequency characteristics changed. Driving-related off-road glances were less frequent with "Autopilot" active than in manual driving, while driving-unrelated glances downward and to the center-stack areas were the most frequent and the longest (22 per cent of the glances exceeded 2 seconds). Little difference was found in on-road glance duration.

The whole idea of such system is to offload some driving tasks from the driver, so they can focus more on staying attentive to the road—but the result is opposite. Even more, as the study found that drivers looked more at the road after disengaging "Autopilot".

This study would be most likely applicable to any similar system, but conclusion is discussable as systems like Tesla's are used on motorways where the crash rate is far less than on surface streets. It also confirms that a DMS is necessary to monitor driver attention.

The Design Lounge

Sustainability as Premium Design?

THE DESIGN LOUNGE

VW ID.Life Concept

BMW Vision Circular Concept

In the last issue of the Design Lounge, we looked at the VW ID.Life concept and sustainability as a design theme. This week, we look at BMWs' Vision Circular concept from the same IAA Mobility show in Munich, and at premium sustainability as its design theme. The Vision Circular press release highlighted end-of-life recycling, design for disassembly, and sustainable materials along with 3D printed parts as an overarching theme. So here again, we ask if sustainability is really a design theme or a method of execution.

The Vision Circular seems to be more of an exploratory concept as opposed to what VW displayed with their ID.Life vehicle. What could future materials and their associated design/form language for the BMW brand entail?

The unique and primary objective was for a premium/luxury small car to utilize unique/new materials throughout its interior. This can be clearly seen in the massive crystal structure that dominates the instrument panel and front compartment.

Another vehicle that expanded the small car segment years ago in the 1980s was the Lancia Y. This was the first premium/luxury vehicle in its class, and foretold what Lancia would become.

Lancia Y

BMW Vision Circular concept

When introduced in its original 3-door layout, the Lancia Y brought premium and luxury materials and design cues to a segment that was primarily focus only on entry-level offerings and options. BMW, with their Vision Circular concept, seems to be doing the same but with sustainable premium materials.

Lancia Y

BMW Vision Circular

With a strongly horizontal theme positioning the cluster hidden in a centrally mounted position, the original Lancia Y created a calming, luxurious atmosphere previously unavailable in the small vehicle segment. BMW contrastingly, highlights the material and processes (suedelike surfaces and a 3D printed UX/HMI crystalline center stack) creating a more opulent and decidedly less automotive feel.

Lancia Y

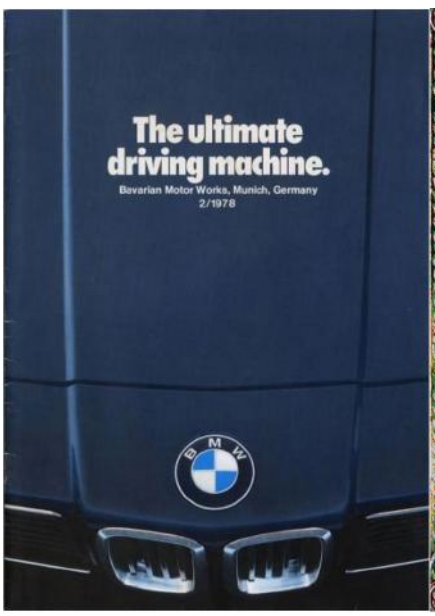
BMW Vision Circular

Lancia used a black background for the carpet, doors, and IP while contrasting suede like upholstery emphasized the luxury-premium feel of the interior. The Vision Circular also has suede like materials throughout the interior, even including a similar surface for its carpeting. Dark colors are excluded, with lighting effects and metallized surfaces creating contrast or focal points.

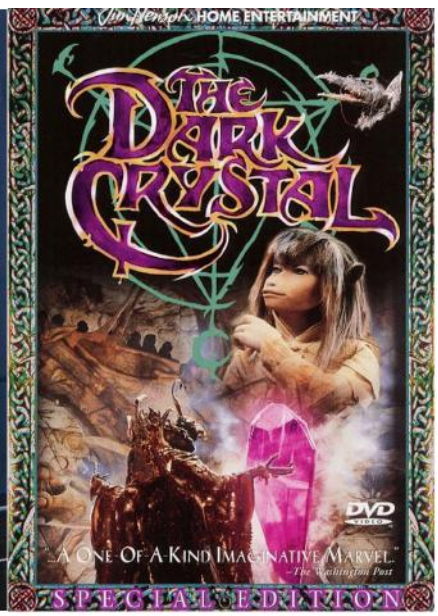
The use of similar type material surface quality is differentiated with subtle pale colors that are also used for the metallic-surface trim pieces.

Only by using blackened wood in the instrument panel are any high contrast areas applied within the Vision Circular. The seating surfaces are plush, and have a tufted look and feel.

The materials' sustainable properties seem to be the highlight and primary design theme, yet its overall atmosphere is decidedly more avant-garde than driver- or performance-oriented, as the BMW brand is known for.



BMW's Origins



Jim Henson's (of Muppet fame) cult classic

As with VW's ID.Life concept, sustainability is decidedly not a design theme, but a path towards execution. The goal of premium luxury, as seen in the original Lancia Y, with sustainable materials for the modern BEV, was what BMW tried to display.

Unfortunately, we find the overall design theme has less of a BMW ultimate-driving-machine feel and more of a dystopian-fantasy feel that brings to mind the 1980s cult classic movie "The Dark Crystal".

We do commend BMW for exploring new thematic direction, but if Lancia is any reference, they might be wise to re-incorporate the strongly-rooted BMW driver-first theme.

News Mobility

_Car interiors Unplugged

NEWS MOBILITY

31. Privacy Versus Property_

(*an ongoing series portraying automotive interiors as an evolution of our habitat*)

‘Ephemeral’ is the opposite of long-lasting and here, stands as a description of how we occupy space in time. After a huge growth and expansion, consuming territory as fast as our cars would travel, we came to an era that we now contemplate mobility as an everlasting structure. Mobility and Urbanism are intertwined like at no other time. The access to anything static is no more about location but nearly, just about transportation. In the case of autonomous vehicles, the borders between the two start to blur. Here is there and there is everywhere, location is broken because location is ubiquitous. Mobility as a service has defeated mobility itself. Equally revealing is the physicality experienced during this moment in our mobile history and new routine.

As highly mobile species, we, humans are not immune to predictable events. The pandemic forced us out of the automobile, imposing home-office, altering

the sense of balance between personal life, business and anything in the middle, as in transportation. It enabled however a complete revision of the perceived values on artificial environments, like office buildings and open space working conditions and soon enough, a dedicated area in our house turned back to a 1990s cubicles revival. The aesthetic deficit of confined, man-made spaces in both cases was phenomenal.

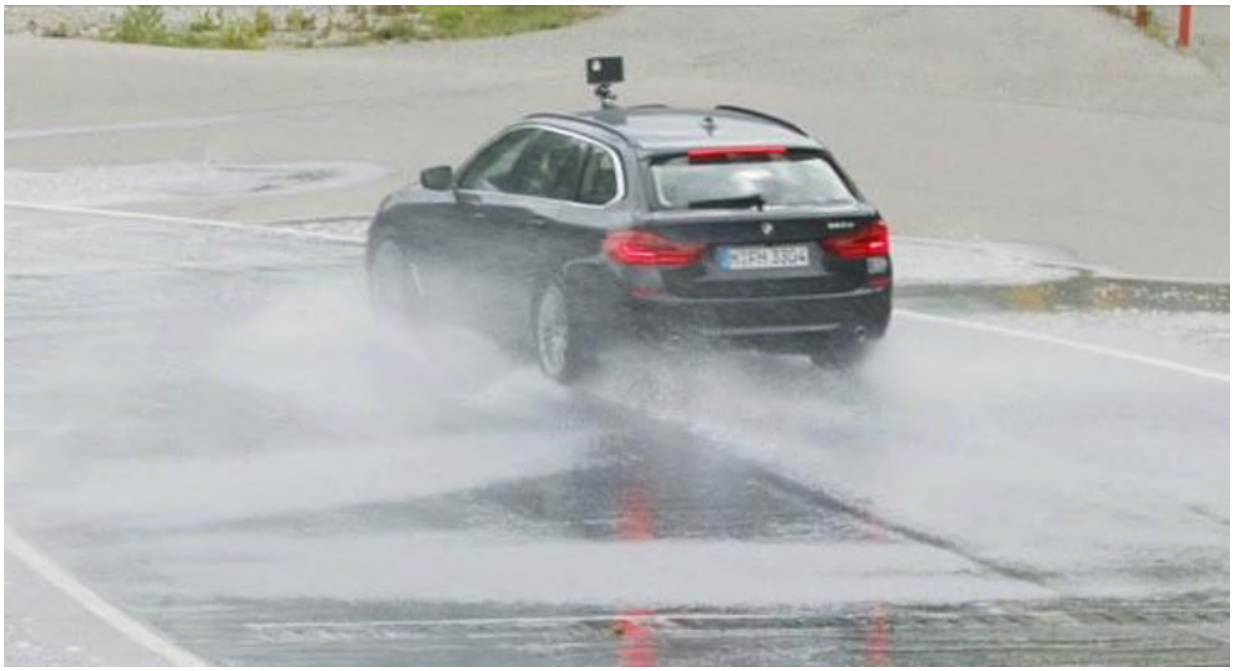
Corporate offices now partially occupied, feel like hotels that did not quite capture the imagination and the magic that were trying to sell. Likewise, our surprised, inadequate household absorbed the virtual part of our business, like a confined space with a control center; a space that also orders mobility, handles mobility and receives mobility, an in-house mobility headquarters. In the meantime, the pure act of driving has shattered within a package of pre-dialed destinations, operators, apps, parcel delivery and picking up potential passengers, thus, dissociated by the vehicle itself. And it is precisely that participatory act of mobility that has been transferred from the car interior into our homes, creating a certain conflict between privacy and property.With no need for cables, people do not need to be tied anymore to a location in order to activate mobile decisions. There is a different type of visual spatial intelligence that is now required. We have to learn again how to create new spaces to live...

_to be continued…

_____*INDUSTRIOUS__*

Automated Mobility: Early Warning For Water Hazards

NEWS MOBILITY



FRAUNHOFER EMFT IMAGE

The Fraunhofer EMFT (Fraunhofer Research Institution for Microsystems and Solid-State Technologies) and Uedelhoven Studios are working on a real-time warning system that detects hazards caused by water or ice on the road surface; **Roadar** aims to make autonomous driving safer.

If cars are soon due to be on the way on our streets without a driver, the vehicle must be able to travel from A to B independently, despite pouring rain or black ice. Although modern cars are already able to monitor many environmental parameters, they cannot reliably detect unexpected water and ice. This is now made possible, though, by an assistance system, capable to predict the imminent change on the road surface and integrated into the vehicle control system. The vehicle will be able to automatically react to such changes and to avoid the risk.

In order to reliably detect sudden water and ice on the road, the Fraunhofer EMFT and Uedelhoven Studios are working on optical systems for a predictive detection of road conditions as an early warning system that minimize the risk of slipping for current as well as future autonomous vehicles.

The danger detection of the system is based on interpretation of the optical characteristics of water and ice, which makes the system more reliable and secure than the methods used so far. Roadar uses data from near-infrared (NIR) and polarization sensors together with AI-assisted analysis. This is to enable clear detection and localization of weather-related hazards on road surfaces. In addition. Use of commercially available optical CMOS-sensors combined with optical filters keeps the system mechanically simple and cost effective.

This kind of driving condition detection technology is even more important, as driver of more automated vehicle may lose some attention and vigilance due to other activities.

General News

E-Mobility Coming Faster For Suppliers: Survey

GENERAL NEWS

BOSCH IMAGE

The changeover to electric mobility is happening faster than expected for many medium-sized companies in Germany. In the medium to long term, the industry therefore expects further consolidation. The medium-sized automotive suppliers in Germany are surprised by the speed of the changeover to electromobility, according to a survey by the consulting firm Roland Berger. One in two of the board members and managing directors from the supplier industry surveyed said that the change to electric vehicles is coming faster than expected.

This is a major challenge for companies. "In addition to coping with the effects of the pandemic, the current supply bottlenecks as well as the reduced financial flexibility, the turnaround to electromobility must be completed quickly," says Thomas Schlick, Partner at Roland Berger. Business models now have to be adapted faster than expected, according to the consultants. However, the financial flexibility is limited in many places after the crisis year 2020. In order to manage the transformation and to be able to invest in new technology, the companies are all the more forced to increase efficiency in their traditional business. However, this business is still heavily influenced by the combustion engine and offers hardly any growth opportunities. Companies that are active in the powertrain sector are therefore particularly affected.

"The vast majority of respondents agree that the new value-added structure for battery electric vehicles will threaten the existence of many suppliers," says Schlick. Above all because the drive train of an electric car comprises significantly fewer parts than those of a combustion engine. The respondents expect that the change in system architecture will lead to large parts of the value chain moving abroad. The consequence would be further consolidation and the medium- and long-term cessation of individual companies, especially in the powertrain segment.

VW Launches OTA For Entire ID Family

GENERAL NEWS

VOLKSWAGEN ID.4 (MOTOR1.COM IMAGE)

All Volkswagen ID models can now receive OTA (over the air) software updates through mobile data transfers. This brings VW closer to Tesla-like levels of upgrade capabilities in their growing family of full-electric vehicles. The updates had previously only been available as part of a test phase for customers who had registered with the ID First Movers Club, and are now free for all owners of the ID.3, ID.4 and ID.4 GTX.

The software 2.3 update provides customers with optimized surroundings recognition and a more intuitive operability of the infotainment system. Some of the new functions affect the ID Light, a light guide at the bottom of the windshield, which now gives the driver information on how to save energy while on the road. It also alerts drivers to the adaptive cruise control automatic distance control system. Image processing has also been improved for the multifunction camera, allowing it to recognize motorcycles and other road users more quickly. The upgrade also applies when driving in the dark.

Meanwhile, the update has made the graphics on the central infotainment display "calmer and clearer," with more intuitive operation, which the company said demonstrates how it is responding to feedback from the first ID customers.