DVN-I
Automotive Interior

Thu, 15 July 2021 Weekly Newsletter NEWSLETTER #69

Editorial

DMS Session At September DVN Workshop

DRIVER MONITORING SYSTEM (IMAGE: GRUPO ANTOLIN)

On 21-22 September will come the next DVN Workshop near Detroit in Novi, Michigan—a real, live, face-to-face event with acclaimed speakers and a large spread of expo booths.

The rubric of the workshop is *How to Save Lives in Nighttime Driving*, with topics including driver monitoring, ADB, LED, MicroLED, lighting performance assessment, simulation, testing, measurements, and regulation.

The interior-focused session will focus on driver monitoring systems. As an appetizer, this week's in-depth is looking at these, and how their reliability is enhanced by fusion of information from multiple sensors. As new camera-based systems are being developed, complemented by AI-driven software, new technical solutions become possible. As DMS is expected to be mandatory by 2024, the DVN Workshop at Novi is a timely opportunity to

understand more about it and the variety of implementations now and in the future. Don't miss it! **register here**.

The Design Lounge this week contains the eighth and final chapter of our look at American-market 7-seater MPVs. Through the Mazda story, it summarizes 60 years of family car body evolution, and how a brand has captured the luxury and 'carlike' portion of the current eco-focused movement. As we move to the future with electrification of all vehicles, it will be exciting to see if they also target the 'authentic off-road' portion of this movement as customers are already retrofitting their '80s-'90s AWD MPVs.

Not a DVN-Interior member yet? **Join in**!

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Interior Technology

Sensor Fusion For Interior Monitoring Reliability

IN-CAR MONITORING SYSTEM (IMAGE: HARMAN)

Fusion means combining data derived from disparate sources (sensors) so the resulting composite information has less uncertainty than if those sources were used separately.

Inside the car, this kind of sensor fusion applies first to driver monitoring systems (DMS) that can detect drowsiness, inattention, and impaired driving. As these systems evolve, they will become part of a broader interior sensing platform to provide personalization, advanced safety, infotainment, and connectivity with smart home systems. The DMS can identify the driver and any occupant, and enable personalization to automatically set the seat, temperature, side mirror, and other adjustables to the relevant preferences.

DMS and interior monitoring systems use data from a variety of sensors, complemented by contextual information. They can measure position, steering wheel contact, heart rate, respiration rate, body movement, blinking, eye gaze, and facial expressions. Context could be temperature, weather, type of road, type of trip, music, etc.

Sensor accuracy and precision are fundamental to usefully feed algorithms or AI which will react accordingly. Accuracy refers to a difference between an actual value and the value as indicated by whatever sensor or tool is being used to measure. Precision means the degree of reproducibility of a measurement. So, if one value is measured a number of times, ideal accuracy would mean the sensor reports the actual, true value, and ideal precision would mean the sensor reports exactly the same value every time. In real life, sensors aren't perfectly accurate or precise.

Sensors used in interiors can include cameras, radars, lidars, pressure-temperature-humidity sensors, proximity sensors, and more. Composite data from these sensors can provide a higher accuracy than would be possible if these sensors were used individually. System

optimization consists of defining what is the minimum number of different sensors for the required level of accuracy. For instance, driver drowsiness detection could use respiration rate, blinking, head position, and seat cushion micro movements.

DRIVER MONITORING: A CAMERA TO MONITOR DRIVER ALERTNESS (VALEO)

The main point of DMS is safety—nudging a driver whose attention has wandered or who is drifting off toward sleep, for example. But with the system is in place, many other functions are possible as well: control of functions with eye gaze or with gestures, for instant. A wide-angle camera with good visibility of the vehicle interior can keep an (electric) eye on whether pets, infants, or purses have been left in the car, and otherwise like that. It can also help personalize infotainment, HVAC or other in-cabin functionality.

The three fundamental ways of combining sensor data are:

• Redundant sensors: All sensors give the same information for the function

• Complementary sensors: The sensors provide independent (disjoint) types of information about the environment

• Coordinated sensors: The sensors collect information about the function and the environment sequentially

One significant issue is the multimodality (or heterogeneity) of data at an acquisition and data source level. The sensors have differences in physical units of measurement, in sampling resolutions, and in spatial and temporal alignment.

Experience From ADAS

Silo AI was founded in 2017. They're based in Helsinki, Finland and Stockholm, Sweden, and they focus on safe human-centric AI development. In a recent paper, they presented real-world applications for sensor fusion. Senior AI Scientist Jesús Carabaño Bravo covers the most common use cases for sensor fusion and gathers some of his own experiences in working with modern AI-driven sensor fusion techniques in automotive industry.

He used sensor fusion in tracking for robotics context, especially he was interested how to configure two or more sensors to compete against each other and come with a more accurate result. It’s so fascinating when thinking about the opportunity it can now bring in AI context, especially in automotive.

COMMON AUTOMOTIVE SENSING TECHNOLOGIES (SILO AI)

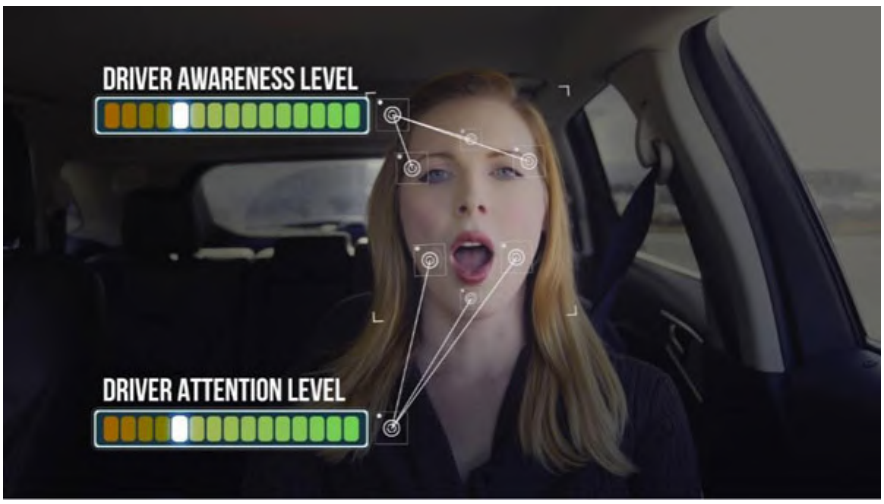
In autonomous driving, sensor fusion technologies are used to achieve situational awareness of the vehicle's surroundings. This awareness is built on various streams of data obtained by various sensors. Sensor fusion offers a wide range of solutions that are also used in risk avoidance (e.g. collision warning), and industrial processes (e.g. quality control).

So overall, sensor fusion is the probabilistic mix of data from multiple sources. The purpose is to reduce the uncertainty of the measurements coming from various devices and increase the robustness of the estimates by combining the strengths of different sensing technologies. Without different streams of data, it would be impossible for the machine to "sense" its environment reliably; in other words, to have situational awareness.

Sensor fusion excels at modeling motion under uncertainty. This is why the military was an early adopter: knowing their units' positions on a hazy battlefield grants strategic advantage. When it comes to civilians and society, the best-known application is navigation systems such as GPS.

Until we get to full automation, today we already benefit from early levels of automation such as adaptive cruise control, parking assistance, collision warning, lane keeping, emergency braking, and others. However, these advanced driver-assistance features are only as good as the underlying sensor fusion technology, and the automotive context places extreme demands on such a system. Ships and aircraft have enjoyed dependable autopilots for several decades now, mainly due to their relatively easier navigation at sea and air, but automotive ACC will behave poorly if the vehicle's speed and distance to the vehicle ahead aren't tracked consistently.

Our sight, hearing, smell, touch, pressure, sense of balance, and other signals are fused by our nervous systems to enable safe driving. The automotive environment requires split-second decisions. If the average human driver reacts in about half a second, a self-driving car or an interior monitoring must sense, plan and act at least as fast.



(TRILUMINA CORP)

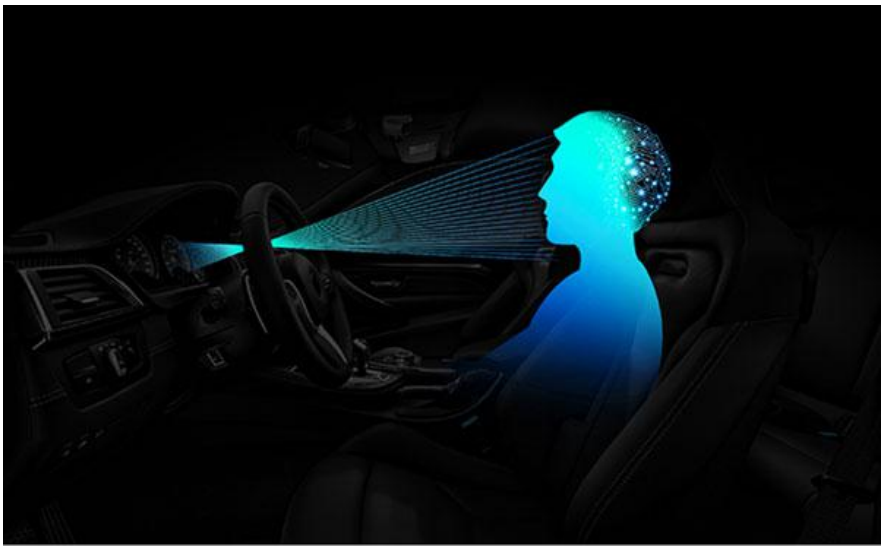
Carabaño Bravo's conclusion is that sensor fusion has many benefits that allow features that wouldn't otherwise be possible. With more accurate data and increased sharing of data, vehicles will become possible that make better "decisions" as they better understand the situation they're in.

Future Regulation Needs Accuracy

For the 2022-24 timeframe, the Euro NCAP is looking at the face for distraction and drowsiness, and additionally, detection of a child in a child seat. For these mission-critical tasks, accuracy is paramount! Inaccuracy in one direction would fail to warn a drowsy driver; inaccuracy in the other direction would annoy a perfectly alert driver with false warnings and probably cause them to disable the system.

It's less expensive to do a single-sensor solution, so many automaker RFQs seek OMS (Occupant Monitoring System) DMS (Driver Monitoring System) and child presence detection all in one system.

Caaresys, based in Netanya, Israel, have a biofeedback platform that provides non-contact sensing of vital signs and human activities. It uses a small RF radar that can be placed anywhere in the car. The system detects seat occupancy and monitors the passengers for respiration and heart rate. It basically senses the vital signs through radar.



(SEEING MACHINES)

And Australia-based **Seeing Machines**'Fovio DMS uses a near-infrared camera that measures and analyzes head pose, eyelid movements, and eye gaze even through sunglasses. This data is processed to interpret driver attention state, focus, drowsiness, and impairment levels in real time.

(VISTEON)

Visteon has another approach, integrating the driver monitoring camera into the instrument cluster using the same processor that drives the cluster for reduce costs. They don't need a separate camera housing, which also eliminates a camera wiring harness.

Harman, for their part, produces a system easy to install in a vehicle, for it doesn't depend on sensors in the seats or biometric sensors in the steering wheel (which are dependent on a driver properly holding it). All the Harman system needs to monitor the driver's pupils is a rear-facing camera, and a proprietary software algorithm developed by Harman.

Guardian Optical Technologies, in Israel, has a single camera which provides high-resolution video and depth maps to detect motion down to 0.000254 mm (hundred-thousandth of an inch) resolution, combined with grip on steering wheel and engagement with the entertainment system.

And there are many other solutions, some of them already presented in DVN-Interior newsletters. A one-technology solution might be good enough, but sensor fusion is most likely the best way to get to the accuracy level human occupant deserve.

You won't want to miss the DMS session at the DVN Workshop on 21-22 September; register **here**

Interior News

Steering Wheels: Round, Square, or Not?

INTERIOR NEWS

A steering wheel is round, right? Well…not always. The circular shape was considered a given for decades, but squircular ones were a fad in the late 1950s and early 1960s, so it's a bit of a nothing-new-under-the-sun situation that makers are now once again experimenting with non-round steering wheels. Some recent designs are said to be inspired by race cars; sporty streetgoing models have a flat lower rim, which ostensibly allows ambitious drivers to crank around the bends faster, somehow or other.

1960 PLYMOUTH FURY SQUIRCULAR STEERING WHEEL

BMW IX STEERING WHEEL (BMW)

To ensure that everyone recognizes the BMW iX, the design department uses a steering wheel that has never been seen before at BMW. It is almost hexagonal.

(TESLA)

When Tesla announced the facelift of the Model S and Model X, one important focus was on steering yoke, which Tesla planned to offer as an option in the future. As a horizontal rectangle, it evinces the steering wheel of a Formula 1 racing car or a commercial airliner. It is also novel due to the absence of almost all buttons on the spokes and levers behind them. Where other steering wheels have been upgraded to a control center with push buttons, cursors, rollers or sensor fields for operating assistants, infotainment and the on-board computer, Tesla has only two buttons and a lot of artificial intelligence. For example, it will take over the flashing of the lights and thus make the usual levers superfluous.

In recent years, technology carriers and show cars presented steering wheels that could be folded or lowered, or they were controlled with a joystick. In the Smart Fortwo Vision EQ the designers have given up the steering wheel completely; as a robo-taxi, it is not intended to be driven—so there's no driver, hence no need for a steering wheel.

(DAIMLER AG)

Will autonomous cars of the future have really no wheel? Most of today’s prototype haven’t! Time will tell.

Renault Cockpit Sounds Of The Future

INTERIOR NEWS

RENAULT GRAND SCENIC COCKPIT (RENAULT)

The user experience department at Renault Design is currently working on a new generation of in-car sounds for production vehicles. Drivers hear a range of sounds on every trip, from indicators and parking sensors to seatbelt warnings. They might seem insignificant, but they're the result of rigorous work.

Not only are they important for the driver and occupants, who must understand what these sounds mean, but also for the brand, which can reinforce its identity via these features.

As with a classic industrial design process, work on sound design is carried out with sketches created for each sound, in line with the overall artistic direction and the type of message to be conveyed.

Why put so much work into the sounds heard inside a vehicle? Just because they are central to the overall in-car experience.

William Rodriguez, Renault Design's Experience Manager, says "We're not making music, we're communicating messages with an intentional aesthetic, while complying with and reinforcing the brand's DNA."

There are three major sound groups. Regulatory sounds advise or warnings, such as the indicators, seatbelt warning. Driving aid sounds are features such as the parking sensors and lane departure warning. And multimedia sounds respond to actions performed with the infotainment system.

Sound is one stimuli of HMI. Lighting, visuals, and haptics also play a role. Therefore, sound engineers must find the right balance between sound and the other stimuli. Sounds must be pleasant for the user while sending the right messages to inform, confirm, warn, or alert. The driver and occupants must be able to instinctively interpret them and adapt their behavior accordingly.

And all these sounds, lights, visuals, haptics, all help to reinforce the brand identity. The aim is to inspire emotions by providing a finely tuned and enjoyable driving experience.

For Renault, nature is the main source of inspiration; they worked with a palette of sounds inspired by nature: pieces of wood rubbing together, percussive sounds, seeds pouring, drops of water. Pending consumer test feedback, the sounds are adjusted, sculpted, contoured, and trimmed, while ensuring they match the overall strategy, in close collaboration with other departments such as product, engineering and marketing.

These new sounds will be heard in models launching in 2022.

Software-Defined Vehicles With Human-Centric Design

INTERIOR NEWS

(SHUTTERSTOCK.COM)

“What’s the human thing to do here?” asks Daniel Hall, Toyota North America’s chief UX designer and chief engineer during his interview at Wards Intelligence FOCUS: Software Defined Vehicle. Answering that question and discussing its impact on the industry was the theme of this virtual conference. The event took a deep dive into the evolving capabilities of automakers and the impact of that change on their relationships with consumers and the supply chain in the software-defined era of automotive design.

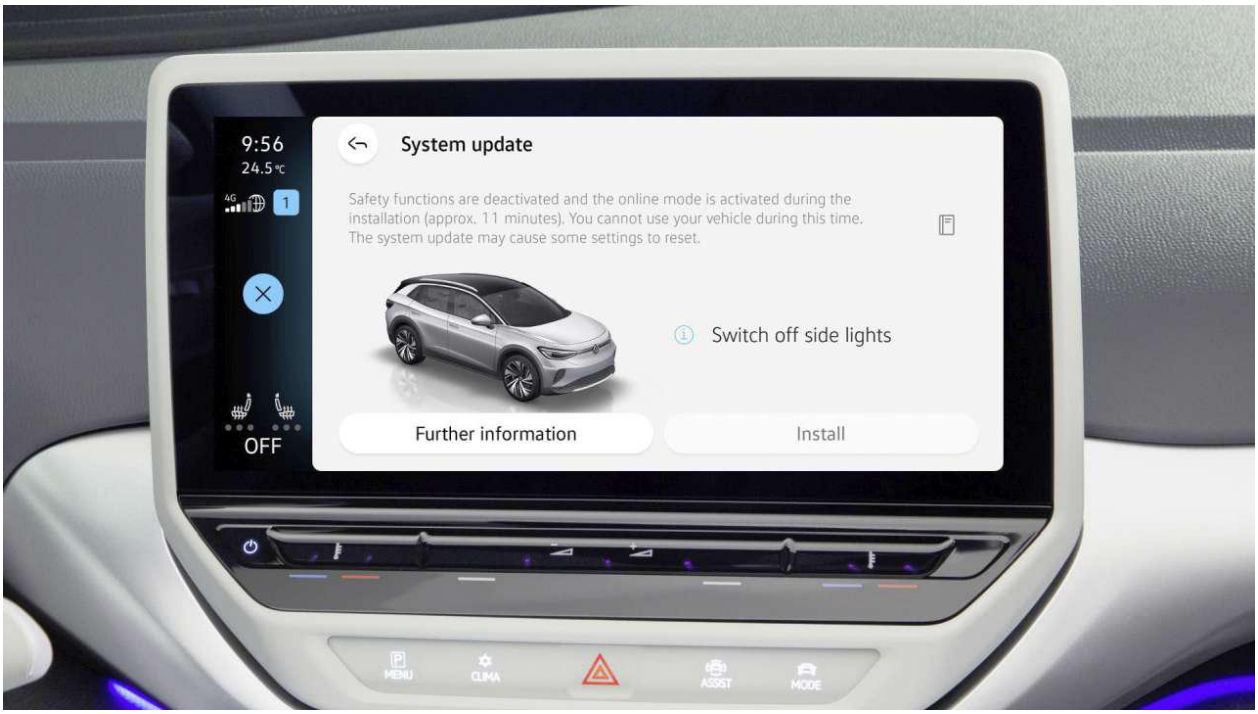
Car companies have evolved beyond product manufacturers into defining brands within their consumers’ lifestyles. Knowing that your customer is a person, rather than a conglomeration of individuals with overlapping experiences and preferences, is key to success at the end stage of automotive metamorphosis into a software-defined industry.

Scaling back offerings, segmenting products by user type and predicted driving experience enables makers to redefine their brands by developing highly targeted products for a new generation of connected consumers. The role of the automaker is being redefined into a digital-first approach. End users are receiving targeted product offerings, and the traditional supply chain is in flux as the industry evolves through the software-defined era. If this business model is to be replicated throughout the industry, structural adaptions to internal organizations and the supply chain must progress.

Consumer demands are evolving rapidly, driven by a digital-first society. “The industry is beginning to look at the ample in-vehicle features with a view to humanizing the driving experience”, says Daniel Hall. He continues “There is an industrywide shift in how suppliers and automakers are working together”. “There’s this renewed sense of responsibility for the end-to-end customer experience from the automaker.” And the completed value chain ahead. That’s what will help to stay ahead of competition.

OTA Software Updates For VW ID family

INTERIOR NEWS



(VOLKSWAGEN)

Volkswagen has launched Over-The-Air (OTA) software updates for their ID.3 EV as they seek to match the upgrade capabilities of the industry benchmark in that field, Tesla.

OTA updates are seen to become central in the digital, connected car world and soon to be a must-have feature for customers, the same way users download operating system upgrades or apps on smartphones.

Starting this month, owners who are part of the "First Movers Club" of early ID.3 adopters will receive the latest software, version 2.3. This update includes adjustments and improvements to ID Light functions, optimized surroundings recognition and dynamic main beam control, upgrades to the infotainment system, and additional performance and stability improvements.

For infotainment, the upgrade refreshes the system with redesigned digital buttons, customized fonts, and an optimized arrangement of function menus, designed to improve the readability and usability of the infotainment system. The home button can be customized as well: In addition to the Volkswagen logo, numerous national flags are also available.

The upgrades are downloaded directly to ID brand vehicle computers known as the In Car Application Server (ICAS), made up of two central high-performance computers that underpin VW's modular electric drive matrix (MEB) architecture.

Updates for all ID.3, ID.4 and ID.4 GTX customers will follow gradually. VW plans to update the software in their ID cars every three months. The installation of the first campaign takes about 45 minutes, while the second follows soon after and takes approximately 150 minutes to install.

It's also a potential major revenue generation for automakers. In June, VW brand's sales chief Klaus Zellmer said he sees the potential for "triple-digit-millions" in sales through over-the-air upgrades.

MINI Vision Urbanaut Interior Concept

INTERIOR NEWS

LOUNGELIKE SETTING INSIDE THE URBANAUT CONCEPT (BMW)

The compact electric multi-passenger vehicle concept is under consideration as an addition to the BMW-owned MINI brand.

Initially shown in virtual form as a series of digital images last November, the practical multi-seat concept is now set to make its premiere as a physical model on July 1 at the DLD (Digital Life Design) Summer Conference in Munich, Germany.

Named “Vision Urbanaut”, it is being considered to be introduced around 2025, both as a 5-seat passenger car and as a commercial vehicle. At the moment, the idea is for a combustion-engine version for European production, and an EV to be produced in partnership with China's Great Wall Motor. Overall length is 4,463 mm, 262 mm longer than the existing MINI Countryman.

This new concept for future urban mobility has been conceived to explore ideas based around the company’s “Clever Use of Space” motto. It also sets out to create what is described as “modern living space.”

Entry to the cabin is via a large single sliding side door designed to be opened in tight parking spaces. The tall glasshouse and glazed roof aim to flood the interior with natural light. Loungelike ambiance is made possible by a steering wheel that stows away when not in use and front seats that swivel around to face the rear. The rear seats fold away to form a sofa, while a large digital panel is integrated into the interior trim and roof. Its large windscreen is also designed to open when the car is stationary.

The BMW-Great Wall production JV is named Spotlight Automotive. It is based in the Chinese city of Zhangjiagang, where a new factory and adjoining industrial park are under construction.

The Design Lounge

MPV to CX-9: Mazda's 7-Seaters

THE DESIGN LOUNGE

THIS MODIFIED OLD MAZDA MPV AWD BRIDGES ACROSS CATEGORIES.

Mazda’s seven-seat offerings have evolved over the years into their current CX-9. How did it come to this? That's a story going back in time.

In the 1960s, the expansion of the US national highways enabled traveling by car itself as a vacation, in addition to the planned destination. This was the era of station wagons. Starting in the 1980s, the virtually uncontrolled expansion of the US suburbs was complemented by cheap airfare. Daily travels with material hauling were prioritized. This spurred the rise of minivans. Finally, the sharp increase of daily traffic travels starting in the first years of this century brought a ‘back to nature’ movement with outdoors/nature vacation homes becoming a priority, which brings us to the SUVsof today.

The original 1988 - 1999 Mazda MPV (Multi-Purpose Vehicle) was based on a rear-drive car platform allowing for AWD to be easily integrated. This vehicle seated seven, and had front-hinged rear doors rather than the sliding doors of other minivans. A pass-through to the rear seats was available but storage was limited as there were minimal cubbies and no fold-flat seats.


For the next-generation 1999-2006 Mazda MPV, a front-drive platform was brought in, along with the sliding rear doors needed to compete with the overwhelmingly dominant Chrysler minivans and its also rans from Honda, Toyota, Ford, and GM. Storage was increased throughout, and the 3rd row had fold flat seating.


Refinement was the target for the 2005-2010 Mazda 5. The platform was again revised to be more compact and carlike. The feature-set was identical as the earlier MPV but with the addition of a floor console that eliminated the pass-through to the rear seats.


With the initial 2006-2015 CX-9, Mazda moved again to the SUV/CUV type of solution with a pair of jump seats used for the 3rd row. A dominant center/tunnel console eliminated any hint of a family-friendly people hauler or its minivan connotations.

With the latest revised 2021 Mazda CX-9 refinement, materials and perceived quality are the dominant factors. Mazda has substantially upgraded this second generation CX9.

Leather and ‘deep soft’ materials are used throughout the vehicle, even into the 3rd row. Although the latest display technology is absent in the cluster, Mazda has focused on the touch and feel of its materials in their upmarket push.

The use of natural finished wood inlays is a luxury touch. Applied as a bezel for the center console and door panel switching, it creates a large, warm touch point for the customer, as opposed to just the visual swath seen on most interiors.

Fold-flat seating is a requirement these days for most customers…




…but what is interesting is how the use of a first and second row tunnel console enhances the upmarket and luxury feeling in the interior…

…creating a private-jet type of environment for the occupants with detailed stitching and perforations used throughout the interior.

Mazda has captured the luxury and ‘carlike’ portion of the current ‘back to nature’ movement with the CX-9. As we move to the future with electrification of all vehicles, it will be exciting to see if they also target the ‘authentic off-road’ portion of this movement as customers are already retrofitting the old ’80s - ’90s AWD MPVs.

News Mobility

_Car interiors Unplugged

NEWS MOBILITY

TRW AUTOMOTIVE EXPO CAR 2016 (IMAGE: WEBURBANIST)

27. Looking through the glass_

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

"Lack of transparency" is a prominent narrative widespread by circumstances. While political debates and current resolutions measure C19 consequences, a factual answer was given by stock markets in the second half of 2020: anything transparent skyrocketed. Clear barriers were installed at stands and restaurants, unbreakable partitions to separate bus drivers from boarding passengers, and "barrier posts" to safely measure employee temperatures. Clear materials made their way into shops and services as well as into our houses.

Without being market or industry specialists, we can suppose that investments become substantial over due time. Allegedly, if pandemic had an expiry date, we might risk a crunch of an economy coupled by manufacturing. It is difficult to predict post-covid styles but technologies and civic sense developed during this period indicate perhaps that the trend is here to stay. During the first half of 2020, uncertainty led flexibility and by the second half,

uncertainty steered reinvention of what had been acquired over the new bids. Upset by a sort of financial embargo, the pandemic imposed unpleasant last-minute fixes to a somewhat unprepared industrial production. Our troubled entry to industry 4.0 will probably mark the era. If reactionary investments had a fast return, then an expansion in the sector is expected. Rapid growth in one specific segment (for instance, a particular emphasis on tooling since anything transparent requires high-end surface quality) have always brought about original new processes and matching aesthetic expressions in everyday life. And it is not only designers who see transparency having a great potential today but apparently so do politicians.

While design trends emerge, through a multitude of domestic short-term developed products (ie Plexiglas cased espresso coffeemakers, transparent shielded dryers, see-through secured dispensers), automotive, due to its complexity and long investment circles, represents a longer yet more permanent expression of the matter. When automotive history is seen through ‘shelter and prospect’, exploring transparency versus opacity, green-house versus car-body, then proportions become a key part and a serious way to forecast upcoming car interior tendencies.

Vehicle beltline is where the two opposite universes meet and proportions are decided, expressing posture and character. In addition, the essential lateral volume is sculpted to pronounce the best body section. This is the zone of the highest contrast and intensity, spotlighting reflections and shadows, juxtaposed on most significant details to piece together the looks of new mobility. Greenhouse development can introduce new automotive morphologies changing entirely our relationship to surroundings. In interiors, this is precisely what defines the dose between prospect and protection. From Fangio’s Alfetta159 to Verstappen’s Red Bull RB14, it is quite revealing the 50-year panorama of F1 beltline evolutions, leading into both improved shelter and vision. Perhaps the most striking thing about them is the intricacy of lines that clearly separate the two bodies: the car-body by the pilot’s body. Similarly, these notions are reflected to a tremendous degree into production cars. All feelings and emotions related to mobility have to do with this magic alchemy between visible and hidden. Very ‘transparent’ cars often relate to lounge-type interiors and to a certain lifestyle. More opaque/solid cars refer rather to sports and racing or even in another case, utility and tactical vehicles. Furthermore, entirely ‘opaque’ autonomous pods, airbrush out any notion of beltline along with the interior itself and anything transparent.

Considering all the above and just about every vehicle combination in between, transparency is now seen as part of the fabric of mobility. Never before we witnessed such a vast variety of mobile objects from a 360 transparent autonomous passenger pod to an almost completely opaque delivery vehicle. Maybe a polarizing sect of mobility will increasingly dictate the future of car interiors separating the somewhat opaque from the more transparent ones, promoting protection and privacy versus vision and inclusion or, it might even be the other way round. Great imaginative achievements that could trigger a new era, could translate interiors through fresh and original visual vocabularies. Mobility trends can be glamorous and extravagant as well as frivolous and ephemeral but also, a great way to grasp how a society thinks about itself.

_to be continued…

_____INDUSTRIOUS__

Aircar: A Sports Car That Flies

NEWS MOBILITY

For the air and the road: the Aircar combines both worlds. A car that can be driven and flown with fold-out wings. Entrepreneur Stefan Klein was on the road for the first time with his model between two airports. In 35 minutes, the Slovakian engineer flew his self-developed mix of sports car and aeroplane from the airport in Nitra to the international airport Bratislava, 90 kilometers away.

(KLEIN VISION)

On the ground, the Aircar looks like a small Formula GT racing car, albeit with a strikingly monstrous spoiler and propeller at the rear. At the push of a button, the "Prototype 1" then transforms into a small aircraft as the wings fold out from the flanks. Locomotion is provided by a 160 hp BMW engine, which also drives the fixed propeller in flight. This allows the car plane to reach a top speed of 190 km/h (103 kt) and a flight altitude of 8,200 feet, just under 2,500 meters.

It was the 142nd flight of the Aircar, which had completed over 40 hours of test flights under the supervision of the Civil Aviation Authority, including steep 45-degree turns and stability and maneuverability tests. Nevertheless, a ballistic parachute is on board just in case.

After landing, the aircraft is transformed back into a car in less than three minutes at the push of a button. **See video.**

(KLEIN VISION)

The interior looks more like an aircraft cockpit!

Stefan Klein's company Klein Vision has already announced the second prototype, which is expected to reach a cruising speed of 300 km/h (162 knots) with a controllable pitch propeller and fly up to 1,000 kilometers.

FAW-VW's Mobility Service Subsidiary

NEWS MOBILITY

MOBJE MOBILITY'S LOGO; PHOTO CREDIT: MOBJE

FAW-Volkswagen, a passenger car joint venture between China's FAW Group and Volkswagen, has built an independent subsidiary to operate their mobility service brand Mobje Mobility.

The Mobje Smart Mobility Company was founded this past June 29. It involves a registered capital of C¥400m ($61.82m) and is wholly held by FAW-VW. Its line of business covers car leasing, hourly car rental, and ride-hailing services.

FAW-VW made its foray into mobility service in April 2018 by launching its car-sharing service brand Mobje Mobility, under which a trial operation kicked off in Changchun, Jilin province, where FAW VW has its original Audi plant. In March 2019, the carmaker deployed over one thousand cars to offer mobility services to local users in Changchun. The service was launched in Chengdu, Sichuan province afterwards, other cities where FAW VW is assembling Audis, VWs, and Jettas.

In 2018, FAW-VW delivered over 2.05 million new cars, achieving a 2.6 per cent year-on-year growth, versus the first-time decrease hitting China's passenger vehicle market since 1990. The company saw its annual deliveries in 2019 climb 3.8 per cent to nearly 2.13 million units. With around 2.16 million cars delivered, FAW-VW posted a 1.5 per cent growth year-on-year in 2020. Notably, the joint venture was the only PV manufacturer in China to exceed 2-million-unit volume in both annual sales and outputs last year.

Traditional automakers here in China, like Geely Auto, SAIC Motor, Great Wall Motor, BMW, and Dongfeng all launched their mobility service platforms, indicating their ambition to be a mobility service provider in addition to a pure carmaker. And maybe in the future, instead of!

General News

Management Change At Dräxlmaier

GENERAL NEWS

(DRÄXLMAIER)

Dräxlmaier has filled two new positions as of 1 July. Stefan Brandl joins the management team as Vice Chairman, while Markus Junginger becomes the company's new CTO.

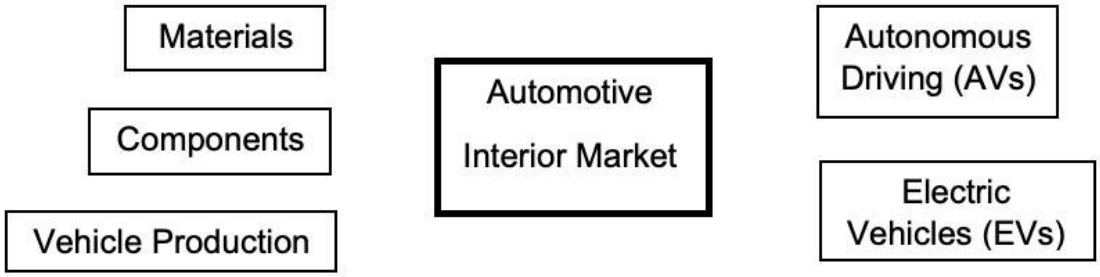
Stefan Brandl has been the new Vice Chairman of the Dräxlmaier Group since the beginning of this month. He steers the strategic course of the company in close coordination with Chairman Fritz Dräxlmaier. Brandl previously held a responsible position at the EBM-Papst Group for over 30 years - most recently as Chairman of the Board of Management.

And Markus Junginger, CTO since the start of the month, succeeds Martin Gall, who held this role in parallel to his role as CEO of the Dräxlmaier Group. Gall will continue to serve as CEO of the company together with Franz Haslinger, while Junginger will report to Gall as CTO. Junginger has more than 25 years of experience in the automotive industry. One focus of his career has been the transformation of development organizations, processes and methodologies. He was a partner at MHP Management- und IT- Service, where his focus was also on transformation processes in the automotive industry.

The Dräxlmaier Group supplies premium vehicle manufacturers worldwide with complex wiring systems, central electrical and electronic components, interiors and storage systems. In interior is known for traditional handcrafting of leather, natural fiber forming, thin wall parts, interior lighting and storage system, as in doors. In 2020, Dräxlmaier the Group achieved a turnover of 4.2 billion euros.

Automotive Interior Market Expected To Grow

GENERAL NEWS



Markets & Markets estimates the growth of the automotive interior market from USD $123.2bn in 2020 to $153.8bn to 2025, at a CAGR of 4.5 per cent in this period. The market is driven by increased vehicle production, developments of EVs and AVs, advanced components, materials, seating and lighting systems, and a higher demand for infotainment, comfort and convenience in vehicles.

The COVID-19 pandemic has decelerated the growth of the automotive interior market, but experts expect a significant recovery in 2022. The market growth in Asia Pacific will depend on the increasing vehicle production and the demand for high-end vehicles and in Europe on the rising demand for advanced interior components. Asia-Pacific is estimated to be the largest and fastest-growing automotive interior market till 2025.

Government regulations for safety and carbon emission are forcing the carmakers to lightweight vehicles. According to industry experts, more than 5 per cent of fuel can be saved on a weight reduction of around 10 per cent. In cost-sensitive automotive markets, some automakers prefer low-cost plastics and finishing in interiors, but premium car manufacturers prefer high-quality materials and finishes.

The prices of some automotive interior components have decreased in the past few years, but advanced automotive interior electronic components are still at a higher price range. Due to the trend for enhanced user experience and convenience features, the share of electronic systems has increased from about one to 10 per cent of the total vehicle costs. Features like multi-way adjustable front seats, rear seats with reclining function, larger multi-information displays, infotainment systems with cameras, gesture controls, more-zone climate control, ventilated and massaging seats are some reasons for higher costs for the car interior, even beyond the premium segment of passenger cars.

Autonomous vehicles will additionally increase the demand for advanced automotive interior technologies. AVs could accelerate the demand for cockpit electronics and more cruise control features and advanced safety systems for semi-autonomous vehicles, which would also increase the development costs. The seat segment could have the largest growth of the automotive interior market in the next years, because seats play an elementary role in the driving and passenger experience in AVs with new functionalities. For example, Faurecia's Active Wellness 2.0 seat concept encompasses a lot of biological and behavioral data from heart rate, respiration rate, and humidity to blinking, head tilting and facial expression. It enables the seat to detect the mental and physical status of a driver and co-passengers and take active measures to diminish stress and drowsiness.

Some of the leading manufacturers and suppliers of automotive interior market are Faurecia (France), Continental (Germany), Grupo Antolin (Spain), Visteon (US), Marelli (Japan), Yanfeng (China), Adient (US), Magna (Canada), Toyota Boshoku (Japan). These suppliers focused on growth strategies such as new product developments, expansions, supply contracts, collaborations, partnerships, acquisitions and joint ventures.