Thu, 24 August 2023
Weekly Newsletter

DVN-I
Automotive Interior

NEWSLETTER #175

Editorial

DVN Triple Workshop In San Francisco – Last Chance, Register Now!

The DVN Triple Workshop—Lighting, Lidar, and Interior—is happening **next week** on 29-30 August in San Francisco. The Interior Deep Dive docket looks exciting; you'll find it **here**. It's going to be a doozie; if you haven't yet signed up, hurry fast; last minute registration is still possible!

This week's in-depth article brings you all the details about the presentations and the discussion to follow. Don't miss it!

In the meantime, enjoy the diversity of the news of this week: new concept cars with focus on interiors (GM, Continental); sustainability (Bentley, Honda); Safety (Autoliv); in-car TV, and a glimpse of automotive history in the Design Lounge.

I'm eagerly looking forward to meeting you in San Francisco next week.

Sincerely yours,

Philippe Aumont
DVN-Interior General Editor

In Depth Interior Technology

Deep Dive "Interior Lighting and beyond" – Register Now!

The DVN San Francisco event is happening next Tuesday-Wednesday. Time is fast running out, but it is still possible to **register**, so hurry and don't miss it! The theme ***Interior Lighting and Beyond*** will be discussed by top experts from around the world during our day-long Deep Dive conference.

Why this theme? You have been reading in DVN newsletters for five years about the galloping progress and technology development of vehicle interior lighting. The interior lighting session of the DVN Triple Workshop is an unparallelled opportunity to extend it to how interior lighting is contributing and influencing UX, safety, HMI, and comfort inside the car.

Lighting is no longer confined to basic task illumination as it was for so many decades with the central overhead dome light and maybe another light or two in the footwells and glovebox and luggage compartment. Today's use cases are very different in increasingly automated and connected vehicles. Interior lighting has evolved into at least four lighting subtypes: task lighting; ambient-decorative-comfort lighting; safety lighting for alertness; mood support, and wellbeing detection, and hygiene (UV to disinfect).

VW IMAGE

The DVN event will highlight how interior lighting is contributing and interacting for user experience; safety, HMI, and comfort in the car interior. Five lectures will feed group and breakout discussion sessions. And the opening keynote for the event as a whole is from two Pacific Northwest Research Laboratory scientists, who will talk about a little-understood, under-studied aspect of lighting in and around cars, with significant effects on human wellbeing and vision.

The five session lectures will cover all aspects of interior lighting, starting with a session keynote from mobility futurist Dave Muyres, who has great experience in automotive interiors. As a designer and design lead, he's worked with major tier-1 suppliers in many projects all around the world with almost all automakers. He's also served in many government initiatives in Washington DC.

Presentations include a tier-1 perspective from Forvia, looking beyond lighting to HMI, then from Delo focused on integration of interior lighting through adhesives, then Technoteam talking about performance characteristics of interior lighting, and finishing up with Covestro's talk on interior lighting integration through genuine materials. All in all, this session brings the ingredients to develop a forward-looking discussion with attendees, with perspectives from all sectors of the industry.

DVN Interior participants can attend the DVN Lighting Workshop portion of the event, which gives access to the lighting conference and exhibits, as well as the Interior session.

The event is on 30 August, plus a dinner on the evening of 29 August (and the option to attend day 1 of the Lighting Workshop, including a session on interior lighting, on 29 August). That session, to be chaired by Olimpia Migliore, comprises:

- **Valeo · Federico Pardo-Saguier, Innovation & Business Development Director**
  "Interior Lighting Experience for Automated People Transportation
- **Forvia · Maggie Kasper, Advanced Sales Manager; Carlos Altamirano Martinez, Interior Lighting VP**
  "Inspiring Mobility and User Experience Through Integrated Interior Lighting"
- **Yanfeng · Trevor Couture, Lighting Business Development & Engineering Director**
  "Yanfeng Experience In Motion: How Interior Lighting Can Enhance User Experience"
- **Lumissil Microsystems · Aaron Reynoso, LED Driver Technical Marketing Director**
  "Driving Towards Innovation: Illuminating the Automotive Market with Dynamic LED Lighting"

Agenda

29 August

17:15 Lighting Workshop session 2: Interior Lighting
19:00 Cocktail (joint with Lighting/Lidar participants)
20:00 Dinner (joint with Lighting/Lidar participants)

30 August

9:00 Welcome & Opening (Olimpia Migliore, DVN Interior expert)
9:20 Introduction of participants
9:35 Keynote incl. Q&A (David Muyres, Mobility Futurist): *Looking Beyond Specific Lighting Technologies to Understand How Lighting Can Positively Influence How People Get From A to B*

10:15 - Presentation 1, incl. Q&A – Forvia: *Interior Lighting as an HMI Supporting Technology*
Speakers: Carlos Altamirano, Vice President Interior Lighting-Americas; Maggie Kasper, Surface Activation Sales Manager

10:45 Presentation 2, incl. Q&A – Delo: *How Adhesives and Optical-Grade Polymers Forge the Future of Automotive Lighting*
Speaker: Paige Deshler, Regional Sales Engineer at Delo Industrial Adhesives

11:15 Presentation 3, incl. Q&A – TechnoTeam: *Imaging Luminance and Color Measurements for Car Interiors*
Speaker: Tanja Thiele, Light Measurement & Image Processing Application Engineer

11:45 Presentation 4, incl. Q&A – Covestro: *Enabling Dynamic and Functional Lighting Integration through Genuine Materials*
Speaker: Karen Guzman, Marketing Manager – Americas

12:15 Working Group Topic Selection: Olimpia Migliore and Participants

12:30 Lunch
13:45 Working groups about the three presented topics
14:45 Coffee
15:00 Work groups report and discuss
16:00 Next steps; Interior Deep Dive: discussion and suggestions
16:30 Closure – OM
16:40 Closure – DVN Interior Team
17:00 End

Interior News

Continental's AMBIENC3 Concept: Interior as 3rd Space

INTERIOR NEWS

CONTINENTAL IMAGES

Sustainability, individualization, modular interior design, electrification, and autonomous driving are the trends Continental considered and implemented in the planning and development of their AMBIENC3. The concept name is a typographical pun on the word *ambience,* spelled with a 3 instead of an E at the end to bring to mind the idea of the auto interior as the "third space" (after home and workplace). It's built into a classic VW bus, and brings sustainable industrial products into a holistic concept, including development of vegan surfaces.

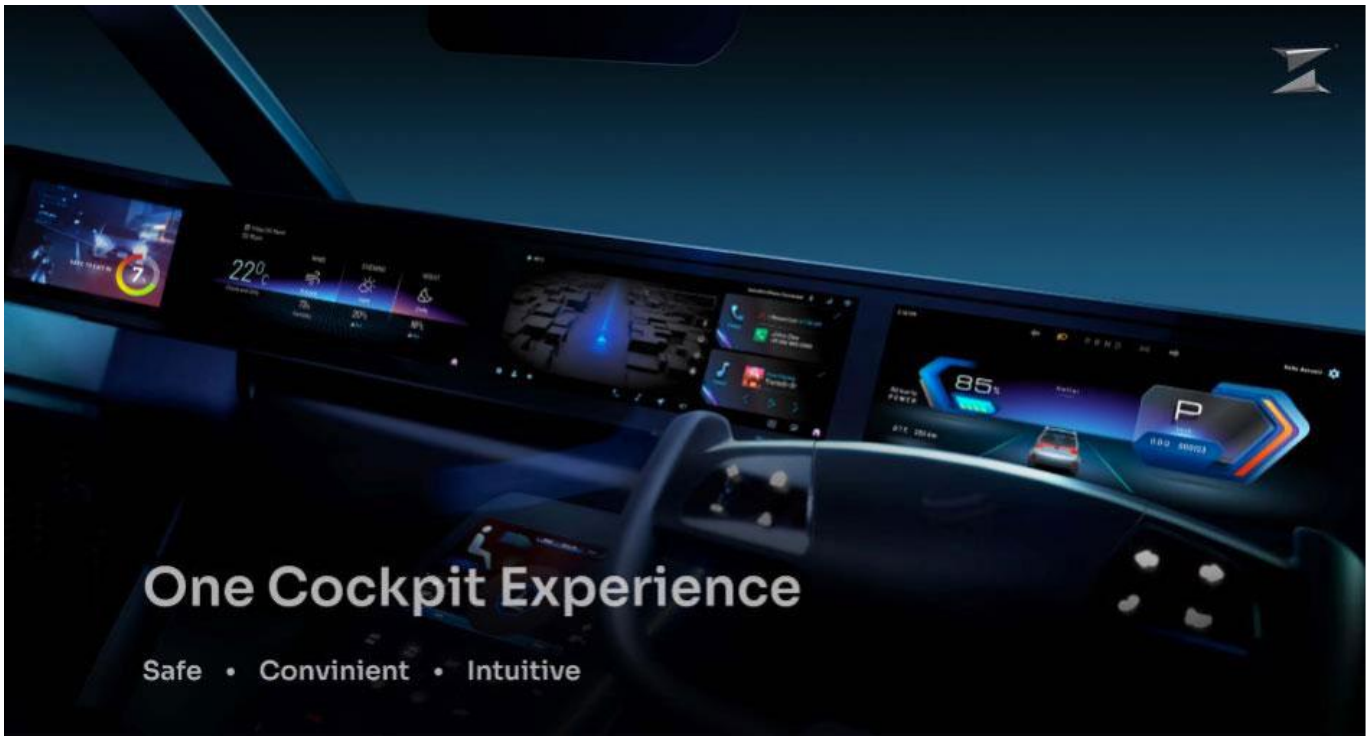
Continental says the AMBIENC3 combines mobility with the living and working worlds in a 3rd space. Passengers benefit from high comfort, high quality designs; smart functions, and durable materials. The interior follows the concept of the third space, where the areas of driving, working, and relaxing merge. This is how Continental envisions the mobile working and living space of the future.

There are breathable materials allowing the seats to provide great thermal comfort. Electronic components, surface materials, and printing technology are cleverly fused to provide passengers with experiences for different scenarios. Staynu® (i.e., "stay new"/ "stain no") technology makes surfaces more resistant to dirt, easier to look after, and more robust. Laif® technology makes interior materials permeable to air and water vapor. This results in a particular comfort, softness, and excellent acoustic properties. Continental developed low-emission solutions with water-based lacquer, and focused on safety and lightweight design, especially important for electric vehicles.

Dr. Dirk Leiss is responsible for Continental's Surfaces business unit, which designed, developed, and created the concept. He says "Our AMBIENC3 is the physical proof of a virtual idea. Our individual core competencies become visible in real terms as a holistic project and can be experienced by you. Haptics, design, functionality, aesthetics, comfort and much more. A car icon of a bygone era as a sympathetic bearer of a sustainable automotive future".

Initia Cockpit Segregates Information to Ease Cognitive Load

INTERIOR NEWS



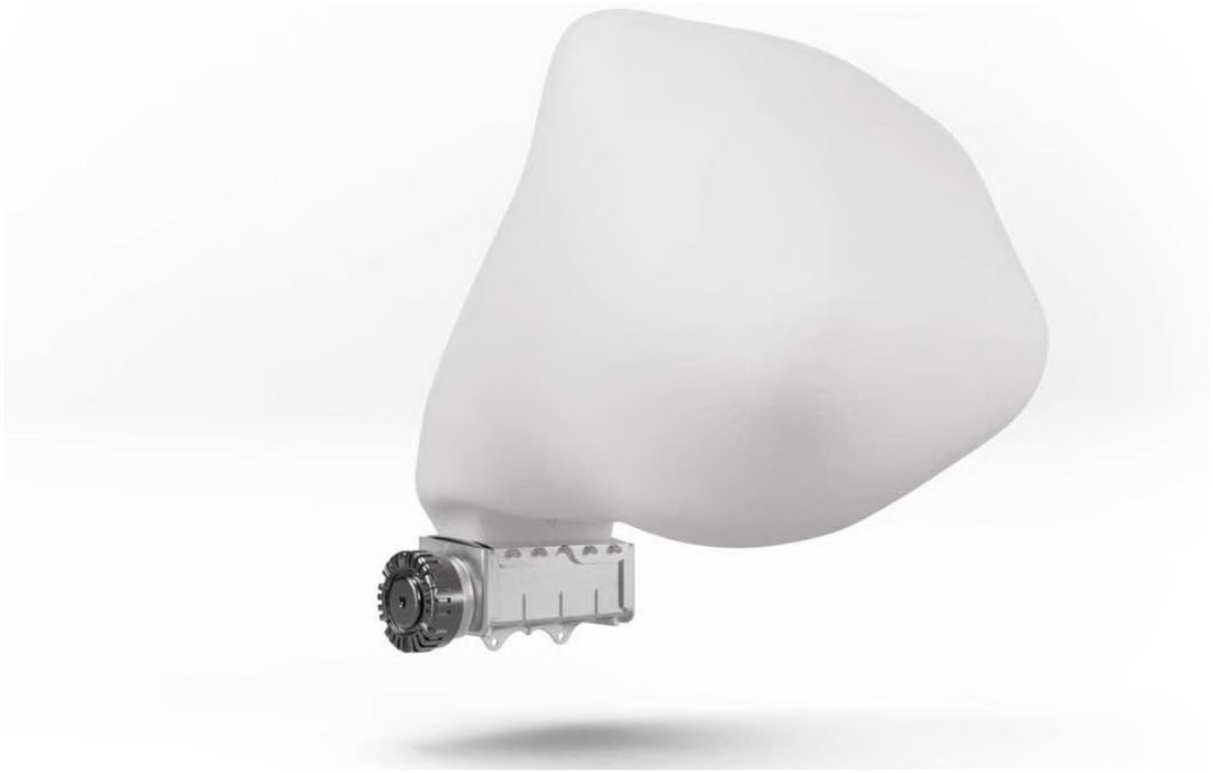
Initia is an independent design consultancy studio owned by Indian automotive component and system supplier Uno Minda. Initia's specialty lies in all aspects of automotive design. They provide creative services to automakers, automotive tier-1 suppliers, and mobility solution providers. These creative services include automotive design and styling for all kinds of vehicle interiors, exteriors, and components; design research; usability and trend analysis; UX design; visual design; motion graphics, and mobility ecosystem design.

Their new car cockpit is designed to address issues in developing countries. It reduces cognitive load by dint of segregation into primary, secondary, and tertiary data displays strategically placed across the instrument cluster, infotainment system, and passenger display.

Information is divided into three display units. The driver can concentrate solely on the road and access necessary information through the steering wheel controls. The IVI (in-vehicle infotainment) display shows relevant contextual information as needed. The third display is designed for the front passenger, and configured such that it does not distract the driver. It has a do-not-disturb mode, which displays only essential information.

Autoliv's New Bernoulli™ “Big-Bag” Airbag Module

INTERIOR NEWS



AUTOLIV IMAGE

Autoliv's new Bernoulli passenger airbag module can inflate larger bags more efficiently, and reduce the development time and cost.

The new module is based on Swiss mathematician and physicist Daniel Bernoulli's principles of fluid dynamics that explain many phenomena such as how airplanes fly.

Bernoulli's Principle states that an increase in the speed of a fluid occurs simultaneously with a decrease in static pressure. Using this principle, Autoliv can leverage pressure differences to add a significant contribution of surrounding air to the inflation of an airbag.

Benefits include self-adaptivity (occupant count; seat track position, out-of-position, etc) with a single-stage inflator; lower weight, optimal inflator energy efficiency, and lower exit gas temperature which allows for optimal cushion structure.

In the Bernoulli Airbag, once the inflator gets the signal that a crash has begun, it propels high-pressure gas at supersonic speed through multiple inlet tubes. As the gas flows through the tubes, it sucks in surrounding ambient air into the chamber, which means a much larger airbag can be inflated by a smaller inflator Autoliv have put up a show-and-tell **video**.

EVs with roomier cockpits and comfort seating require larger airbags, and Autoliv's new technology meets that challenge. It also generates less heat, is lighter, and can reduce customer development testing by more than 30 per cent.

Honda Recycles Worker Uniforms Into Insulators

INTERIOR NEWS

HONDA IMAGE

Honda is advancing a recycling initiative that takes worn uniforms at their U.S. manufacturing and R&D facilities and transforms them into sound-absorbing insulation for use in Honda and Acura automobiles. This program diverts approximately 45,000 pounds of uniforms from reaching landfills each month, helping Honda move toward using 100-per-cent sustainable materials in their products in the future. And online **video** explains how it works.

Honda has established a global 'Triple Action to Zero' approach, with the goal of achieving carbon neutrality for all products and corporate activities, 100 per cent clean energy, and 100 per cent sustainable materials, all by 2050.

The Honda uniform recycling program leverages cross-industry collaboration between Honda and their uniform suppliers Aramark and Cintas, as well as insulation supplier UGN Automotive and textile recycler Leigh Fibers. Uniforms are recycled and reused in five different insulator parts on all nine Honda and four Acura models made in North America.

At Leigh Fibers' facility, the uniforms are shredded into material that meets the required fiber grade for use as vehicle insulators. Zippers and buttons from the uniforms are first extracted and collected so no metal or plastic will be shredded. Then the material gets blended into mixed fibers and tested to ensure the fiber material meets the fiber length requirements. The reprocessed fibers are then packaged and delivered to insulation supplier UGN.

UGN blends, consolidates, and trims the fibers into material that is molded into insulation and returned to Honda auto manufacturing plants for new vehicle production. Typically, UGN creates insulation from post-industrial fibers, which are sourced from textile companies, and polyester sourced from recycled water bottles. The uniform recycling program marks the first time Honda and UGN are using post-consumer textile waste for sustainable insulation material.

This includes working with suppliers to transform post-industrial textile scrap, such as fibers from denim, into vehicle insulation/absorption material. In collaboration with UGN, Honda annually reuses approximately 2,800 tons of recycled post-industrial textile waste—equivalent to 5.6 million pairs of jeans—and 3,000 tons of post-consumer PET (polyethylene terephthalate) bottles, equivalent to 6 million water bottles, for vehicle sound-absorbing insulation.

Bentley's Organic Olive Tan Leather at Monterey

INTERIOR NEWS

BENTLEY IMAGE

In pursuit of sustainability, Bentley has introduced their first fully organic leather option. The new Olive Tan leather launched at the Monterey Car Week in California last week; that's a glamorous gathering of old and new cars, on par with the Goodwood Festival of Speed in the UK.

The leather is produced using a sustainable tanning process that employs an organic byproduct of the olive oil industry. Derived from wastewater extracted during the olive pressing procedure, the tanning agent does not contain any harmful metals, minerals, or aldehydes. The technique also requires less water than regular tanning processes, and uses more renewable chemicals.

Bentley says they are the first automaker to use Olive Mill Wastewater (OMW) technology from the leather tannery Pasubio, one of Italy's top leather processors. Bentley plans to offer sustainable, OMW-derived leather as an option across their whole product range. Marc Stang is a leather technical expert at Bentley, and says "Leather is an integral component of our car interiors and a prime element in creating Bentley's signature finish. It is also hard-wearing—especially important as 84 per cent of all Bentley cars built are still on the UK's roads. We use 8-12 hides per car, all of which are sourced in the European Union. Bentley also avoids using hides linked to deforestation, reflecting the work within our supply chain to encourage greener processes. We remain committed to more sustainable leather sourcing, as well as working on other initiatives to improve our leather supply chain".

BYD, Stingray to Introduce In-Vehicle KTV

INTERIOR NEWS

BYD IMAGE

BYD says they have plans to put Stingray interactive in-vehicle KTV products on some NEVs starting this year, and will launch it for multiple markets around the world.

Stingray operates digital music, video-on-demand, fusion songs, broadcast music channels, and offline music events in multiple countries. It covers more than 100 countries worldwide and is supported by more than 4,000 carriers and B2B partners.

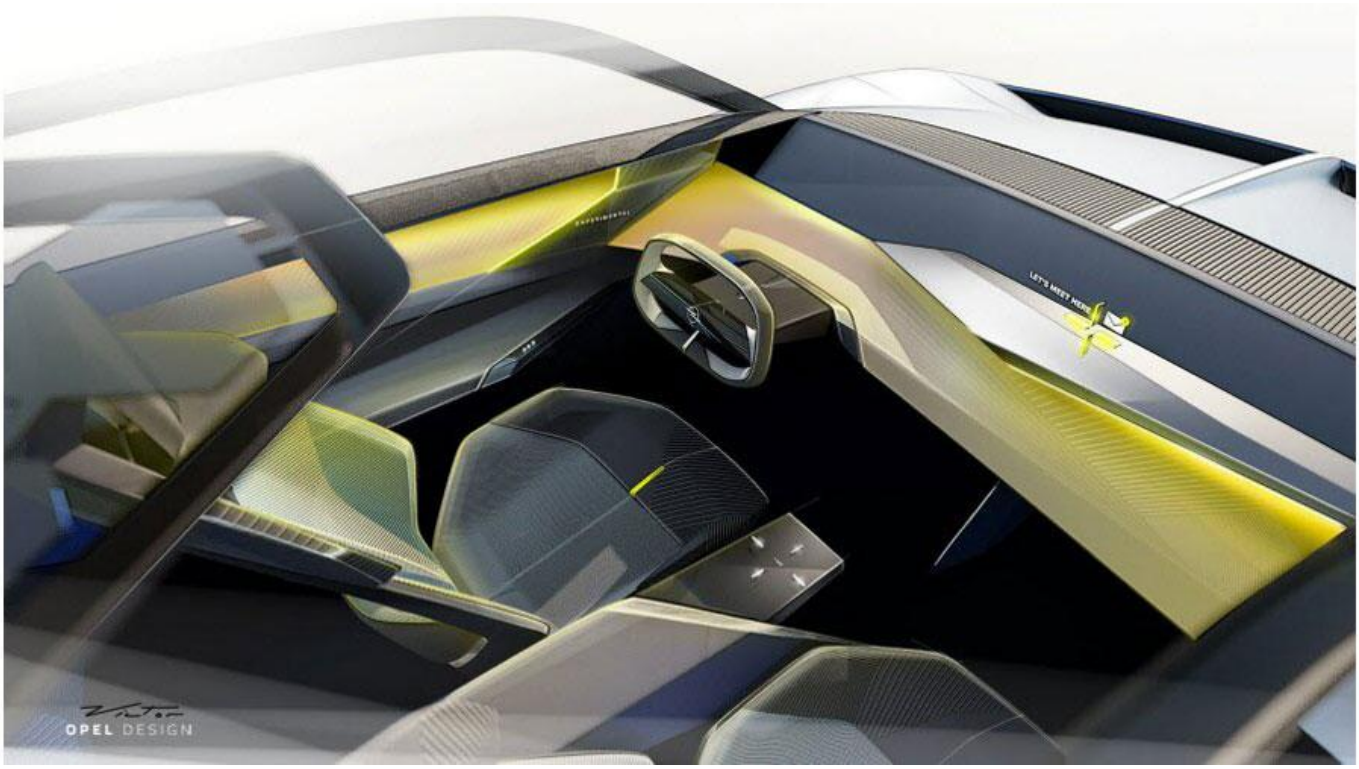
According to the official introduction, the entertainment system jointly developed by BYD and Stingray will plan to support dozens of languages, providing users with a clear and intuitive interface design, users can search for songs by title, artist, lyrics, or genre, and automatically update tracks every month. To ensure driving safety, the system automatically cancels the karaoke lyrics scrolling function on the center console when the vehicle is in driving mode.

In addition, passengers can experience the KTV function in mobile devices through apps, and the system will create a convenient, fun, and safe in-car entertainment space for users.

BYD Vice President Yang Dongsheng is also President of the automaker's Institute of Product Planning and Automotive New Technology. He says, "BYD has created an original intelligent cockpit technology development route in the industry. Through more than ten years of development experience in automotive electronics and consumer electronics, BYD has realized full autonomy from system architecture to software development, from bottom-level drivers to upper-level applications. Based on the continuous exploration of user experience and mobile phone ecology, we have completed the leap of smart cockpit from compatible ecology to fun ecology. ”

Opel's Exciting Experimental Fabrics, Lighting, and Seats

INTERIOR NEWS



OPEL IMAGES

Opel has showcased their future design aesthetics with the Opel Experimental concept, a BEV crossover with an ultra-modern interior design. Highlights include a spacious, illuminated interior with lightweight seats.

Drivers can personalize the information they see on the slim Tech Bridge, an interpretation of the Pure Panel in today's Opel models. Both information and entertainment are delivered via augmented projection technology supported by artificial intelligence and natural voice control.

The Pure Pad, a floating and transparent control pad, is located in front of the arm rest, enabling users to configure controls to match their preferences. The control panel also enables the driver to gain access to their most frequently used controls.

Electrochromic fabrics deliver atmospheric light to foster occupant well-being. The reactive fabrics also enhance functional attributes; for example, when a vehicle enters the Experimental's blind spot, a warning appears in the respective door insert and on the HUD.

Lightweight adaptive seats are made using a durable structure with 3D mesh-technology fabrics to deliver both comfort and space.

Opel CEO Florian Huettl says the car "gives an outlook on upcoming models and technologies, on the future design, even on a new era and the future of the brand". And Opel design VP Mark Adams says it "gives a more extreme interpretation of our Bold and Pure design philosophy. It gives shape to our vision of the future. Many of the elements of its design and the mindset behind it will be visible in future production vehicles. The interior offers an immersive and emotional user experience".

The Opel Experimental will make its world premiere at the 2023 IAA Mobility in Munich, Germany, on 5-10 September.

The Design Lounge

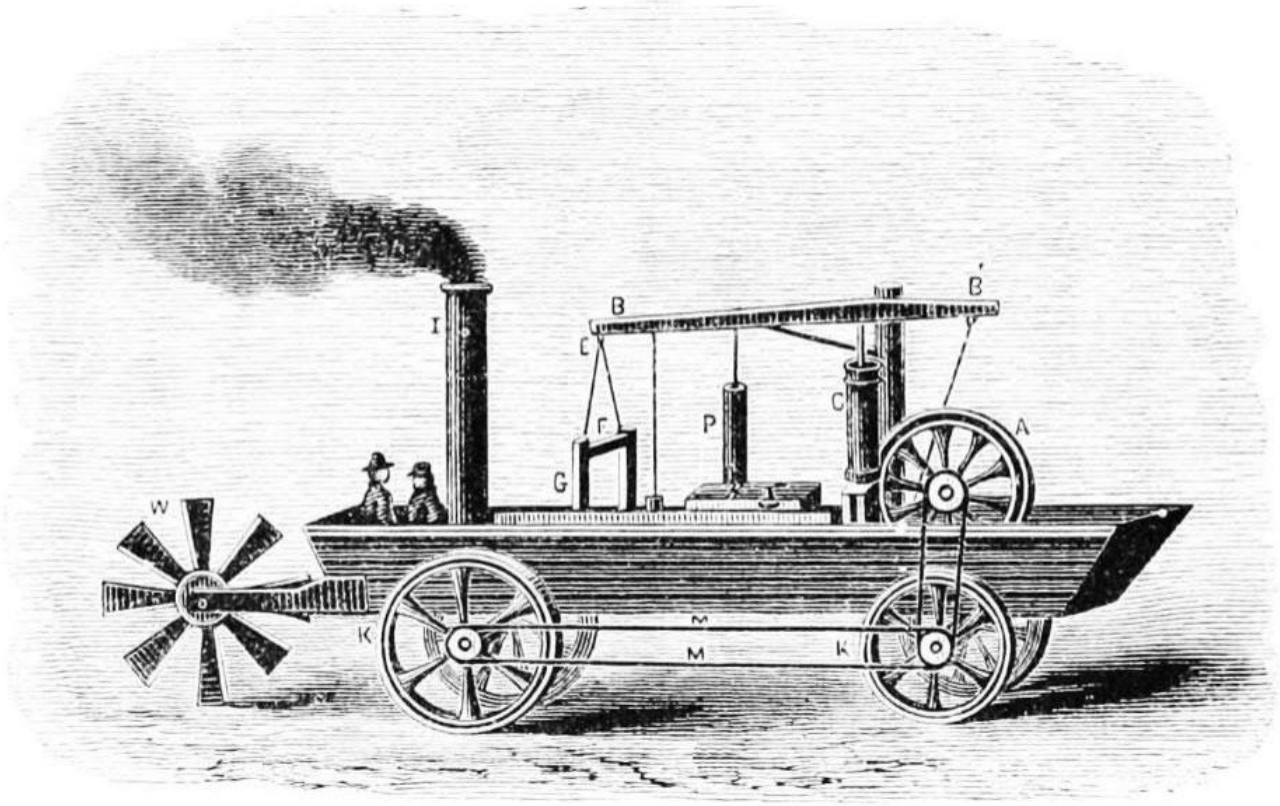
Hybrids

THE DESIGN LOUNGE

COFFEE CORNER

DVN

Interior



WIKIMEDIA IMAGE

By Athanassios Tubidis

Besides the Blade runner Spinner and the time machine DeLorean in 'Back to the Future', the idea of a flying car is just three years away from production…ever since the 1950s. Generally, it was held back from reaching the market by the obstinate doubt that, at the end, it might be driving like a plane and flying like a car.

The upcoming decade will witness the rise of hybrid vehicle forms. Automotive or not, influenced by novel drivetrains, keen on range and sustainability, they will be based on rapidly evolving consumer demands and tech applications. As we begin to see, the new generation of mobility types will draw on established typologies. For instance, contemporary takes on flying cars are making a comeback, in an ongoing development process, combining fundraising and public opinion to a unique open-source R&D approach. This will certainly give something more tangible than any of its initial stages, however, the ‘creative’ attempts are taking place here and right now. And this is how it has always happened, during pioneering moments, before a dominant vehicle type was imposed as the most marketable version of all previous scenarios combined. Many of them were not even

conceived for the same purpose but on the long run, they contributed in the automotive narrative, adding one more tangible goal, a new application, or in times, just imagination.

"I have no doubt that my engines will propel boats against the current of the Mississippi, and wagons on turnpike roads with great profit". These were Oliver Evans' words before getting what is the first-ever automotive US patent for a contraption which, unlike his vision, was finally made according to his only client's needs. The Philadelphia Board of Health was concerned with the problem of dredging and cleaning the city's dockyards and removing sandbars. In 1805, Evans convinced them to contract him to develop a steam-powered dredge. The end result was a craft nearly thirty feet long, twelve feet wide, and weighing some seventeen tons. To move this ungainly hulk to the waterfront, as well to give a demonstration of his long-held beliefs in the possibility of land-based steam transportation, Evans mounted the hull on four wheels and connected the engine to them in order to drive it from his workshop through the Philadelphia streets all the way to the Schuylkill River.

In 1812, he published a futuristic description of a world connected by a network of shipping lines, railroad tracks and steam locomotives, accurately describing what will happen in the future, long before any such potential could be realized: "The time will come when people will travel in stages moved by steam engines, from one city to another, almost as fast as birds fly, fifteen or twenty miles in an hour".

Indeed, mobility is not just a matter of form, or function—it is a matter of perception. Evans' ideas of steam carriages were not an impossible dream. It is believed to have been the first automobile in the United States, and without a doubt, the first motorized amphibious craft in the world. Of course, unlike any marketing rules or educated communication strategy and commercial approach, the chosen label-name was, the very direct and utterly descriptive, Oruktor Amphibolos ('Amphibious Digger').

Cadillac Escalade IQ's Pillar-to-Pillar Display

THE DESIGN LOUNGE

GM IMAGES

The Escalade IQ is Cadillac's third EV, after the Lyriq midsize crossover and the upcoming Celestiq ultraluxury sedan, and it is the first to electrify an existing model name. The Escalade is Cadillac's top seller and has become a pop culture icon in certain circles.

Inside, the Celestiq-inspired 55" display screen runs on Qualcomm Technologies' Snapdragon Cockpit Platform. It is 5G-connected, and features inbuilt Google technology. It's a two-panel construction, divided into a roughly 66/33 ratio. The 33 per cent in front of the passenger is polarized so it can be hidden from the driver's view, and that clears the regulatory hurdle (not to mention the basic safety need) that will let passengers stream video or surf the internet while the car moves.

Secondary controls for climate and the like are accessed through a smaller tablet-style screen, which Cadillac calls the Command Center, below the main instrument panel. But there's more to this interior than screens: an ash wood trim laser-etched to allow the 126-color ambient lighting system to show through, for example.

An AKG audio system comes with additional speakers based on trim level. The Executive Second Row package features 40 speakers, including some in the second-row headrests, 12.6' personal screens, a rear command

center, wireless phone charging pads, and massaging seats. Roominess has been extended versus the combustion-engine version, with nearly 41 cm of additional wheelbase.

Seats are covered in a material that looks, feels, and even smells like leather but is actually a synthetic. The second row has twin captain's chairs with a large center console, with massaging and reclining seats, and stowable table trays. Third-row seating comes with power folding capability. With no engine to house, the front compartment has been converted to an 'eTrunk' (perhaps Cadillac doesn't wish to call it a 'frunk'?) with 340 liters of storage; Cadillac says it can fit two golf bags.

News Mobility

Will Deep Learning Make Autonomous Driving Safer?

NEWS MOBILITY

HUAWAI IMAGE

Researchers have developed a concept for real-time evaluation of a neural network in semi-autonomous road traffic, in hopes of contributing to safer autonomous driving.

In Germany, Prof. Dr. Anne Stockem Novo and M. Sc. Robin Baumann from the Institute of Computer Science at the Ruhr West University of Applied Sciences worked together with researchers from the Department of Mechatronics at the University of Duisburg-Essen and Schotte Automotive on the development. Their research focuses on an amendment of vehicle architectures such that L^3 and higher vehicles can use neural networks (deep learning) to cope with driving tasks. These methods could be used to simulate human-like autonomous driving particularly well, says Dr. Stockem Novo.

The researchers addressed questions about the safe state of the autonomous vehicle now and several seconds in advance. In the safety assessment system now being developed, the vehicle's condition is evaluated in real time. Future traffic situations are predicted from a deep learning prediction model, the reliability of which is evaluated using a large set of training and validation data. The researchers have published their results in an article, "Self-Evaluation of Automated Vehicles Based on Physics, State-of-the-Art Motion Prediction and User Experience", which is **freely downloadable** from Springer Nature Scientific Reports.

GM's Cruise Robotaxis Spreading Fast

NEWS MOBILITY

CRUISE IMAGE

Robotaxis from General Motors' Cruise operation now make more than 10,000 trips with passengers per week, and GM wants to rapidly expand the business; two or three more U.S. cities are to be added to the current three in the next few months. The new Origin robot cab (photo), without steering wheel or pedals, will replace today's converted models. It is already being tested in autonomous operation in several locations, according to Cruise CEO Kyle Vogt.

Cruise so far operates robotaxi services in San Francisco, Austin, and Phoenix. The Chevy Bolt small electric cars, which have been converted to self-driving, are already often on the road without a safety driver behind the wheel.

Only a few companies like Cruise, and Waymo are actively building robotaxi services, in part because of the cost of building and equipping the cars so they'll work well and safely enough to meet with public and regulatory acceptance—a task made harder in reality and perception alike by a string of high-profile crashes, traffic snarl-ups, and emergency-vehicle interference incidents caused by AVs.

Vogt says Cruise and GM are developing a technical platform for the Origin robotaxis that will slash the costs by 75 per cent, adding that it should be introduced by the end of next year. Then, "the threshold of less than a dollar a mile will be in sight, beyond which it will be cheaper for most people to ride a robotaxi than to own a car".

General News

Geely-Baidu Robo-Car Brand Jiyue Launched

GENERAL NEWS

JIYUE 01 (JIYUE IMAGE)

Geely and Baidu officially unveiled their collaborative Automotive Robot Strategic Cooperation Project with a new brand: Jiyue. Positioned as a high-end automotive robot brand under Geely Holdings, the first model is the Jiyue 01.

The two companies already had a JV, called Jidu, primarily focusing on intelligent development achievements. Leveraging Geely's SEA (sustainable experience architecture), they transform Baidu's AI capabilities into engineered products, playing a role akin to a solution provider. In contrast, Jiyue concentrates on complete vehicle production, market operations, user services, and the establishment of a charging and energy replenishment system. So Jidu oversees the realization of the overall technological solution, while Jiyue is responsible for bringing the product to market.

The introduction of the Jiyue brand signifies a step closer to mass production of the two companies' automotive robots. Notably, the new electric multi-purpose passenger vehicle from the Jiyue brand was included in the 374th batch of newly announced products catalogue by China's Ministry of Industry and Information Technology on 14 August.

Cao Hua, a partner at Shanghai-based private-equity firm Unity Asset Management, says "Baidu has accumulated abundant technologies and experiences in autonomous driving and digital cockpit systems, but it has not established itself as a strong carmaker".

According to officials, the Jiyue 01 is the debut vehicle from Jidu, named ROBO-01. The Jiyue 01 eliminates most physical controls such as external door handles and center console buttons, adopting a U-shaped steering wheel, a 3D borderless integrated ultra-clear display, an active retractable rear wing, and empathetic interactive headlights, presenting a highly futuristic design.

Bertrandt Growth to Create 1,000 Jobs

GENERAL NEWS

BERTRAND IMAGE

Engineering services provider Bertrandt can look back on dynamic growth in the first nine months of fiscal 2022-23, according to a statement. Although the period under review was characterized by challenging conditions, the company nevertheless benefited from increased demand for development services and successful project acquisition. In addition, further progress was made with the internationalization of the Group.

Bertrandt specializes in digitalization, e-mobility and autonomous systems, mainly for the automotive, aerospace and mechanical engineering sectors, with around 14,000 employees at more than 50 sites worldwide.

Total income increased by 16 per cent to approximately €860m in the reporting period. EBIT improved to €32.7m, versus €25.8m in the prior-year period. For FY22-23, Bertrandt now expects an increase in total revenues of between €100m and €150m.

Bertrandt management board member Markus Ruf says "With the internationalization of our company, we are creating the basis for further growth. In addition to the opening of a third site in Romania, a site in Morocco was opened in early summer 2023. The focus is on software and electronics as well as product development. Morocco will be expanded to become an important pillar in Bertrandt's transnational development network".