DVN-I
Automotive Interior

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Editorial

New Values For Interior

As we go into the summer vacation season, automotive activity is a typically running at lower speed—except in North America where summer vacation is less of a thing.

Last week in Traverse City, Michigan, the CAM Management Briefing Seminar gave us the opportunity to get great insight on safety and autonomous vehicle cost challenges. We report here as part of our mission to cover automotive interior news around the planet.

Veganism has not (yet?) been near the top of automotive interior engineers' agenda, but it certainly seems to be climbing. We're seeing rising interest through automakers' marketing materials and through dedicated websites on the subject as philosophy develops around the globe. We've focused our in-depth article on the topic, demonstrating once again the importance of leather in our business.

Veganism is another hint of our new concerns as a society. In the Design Lounge, we take a deep look at seat covers and branding. It's interesting to see how premium brands are promoting a "hand crafted" image, and how "hand crafted" aesthetics are stepping ahead of the traditional execution of a brand.

How electric, how autonomous, how connected will tomorrow's cars be? Those are the questions we're all constantly asking these days—and now new questions are joining in: how renewable, how natural, how vegan, how hand crafted? These are still relatively weak market signals individually, but all together they provide increasingly firm evidence that the industry is shifting to new values.

We're happy to welcome a growing stream of new subscribers, and an increase in this momentum will be the major driving force in our efforts to increase the content and value of DVN-I. Please do recommend DVN-I to your colleagues and associates. We look forward to welcoming each and all of you to the growing DVN-I community!

We hope you enjoy reading this issue, and as always, we are listening for your feedback. Contact us today to get your subscription and share your thoughts.

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

In Depth Automotive Interior

Vegan Materials Are Next Step in Luxo Interiors

Animal-free products are in a popularity boom. Today vegan leather shoes, boots, handbags, and billfolds are getting eagerly snapped up—and car seats are increasingly in on the action. Tesla recently became the latest luxury automaker to offer vegan leather seating, joining the likes of Audi, BMW, Ferrari, Lexus, and Mercedes.

Tesla interior

Vegan leather is mostly made from polyurethane, a polymer that can be tailored to any designer's wish. It can also be made from innovative and sustainable resources such as pineapple leaves, cork, apple peels, other fruit waste, and recycled plastic. From these humble feedstocks come materials that put animal skins to shame.
For over a decade now, the automotive industry has been working to introduce natural and renewable materials, largely in response to rising consumer squeamishness about environmental costs of plastics and philosophical objections to animal skins.

And so, new materials are being announced on a practically nonstop basis. McLaren is giving its interiors a new touch that's synonymous with high-end clothing: in a probable production-vehicle first, they're putting in cashmere upholstery on portions of seats in the Atelier trim level. The natural fabric is a blend of wool from Australia and cashmere from Mongolia. According to McLaren, their cashmere is not only invitingly soft to the touch, but also insulating and temperature-regulating to add to overall comfort.

Seoyon, a Korean supplier of interior components, has developed parts that have a cork finish. As an alternative to wood or wood-finish parts, the cork-finished components are being positioned as an eco-friendly, sustainable option with a high-end appearance that is also soft to the touch. "This cork comes from the bark of cork wood," said Seoyon America senior manager YG Kang. "We do not need to cut the cork wood. We are not killing the trees. We just strip out the bark and it grows back. It's sustainable."

The cork bark is cut into thin slices, ranging from 0.7 to 0.9 mm, for application as a veneer. The surface material is placed onto injection-molded plastic, which gives it the structure required to be part of a door trim, instrument panel, or console. The process applies a water-based topcoat to protect the permeable cork from abrasion, sunlight, or stains.

So is this new interest in vegan materials just a temporary whim? Maybe, but there are indications it's really gaining traction. Veganism is on a rapid rise and car manufacturers are increasingly riding the wave. And aside from seats and touchable-surface upholstery, there are other opportunities all around most vehicles: entertainment system screens contain liquid crystals that may be based on cholesterol taken from animals. The rubber and plastic used to make tires may be vulcanized and toughened using tallow (mutton fat), and even the steel used for a car's frame may

have been lubricated with animal fat.

There are also new resources for car buyers. Buyacar.co.uk is a British website with content on the subject; an example of the site's advice to buyers: "When buying a new car, it's easy to specify a non-leather interior but it's not always as easy when buying used—not everything is clearly labelled for identification. Watch for specific names of artificial leathers used by car makers, such as Artico with Mercedes and Sensatec with BMW. And Alcantara is a type of man-made suede and is vegan-friendly". The site cites the best vegan-friendly cars as the Polestar 2, Renault Twizy, VW Golf, Toyota Prius, Range Rover Velar, Ford Fiesta, Mercedes A-Class, Nissan Leaf, BMW i3, and Tesla Model S—all because they are leather free, sometimes with a leather alternative.

That list is consistent with other sources, such as Livingkindly's "Complete Vegan Guide to Buying a Car". That list also adds the Bentley EXP 100 GT and its vegan leather made from grape skins.

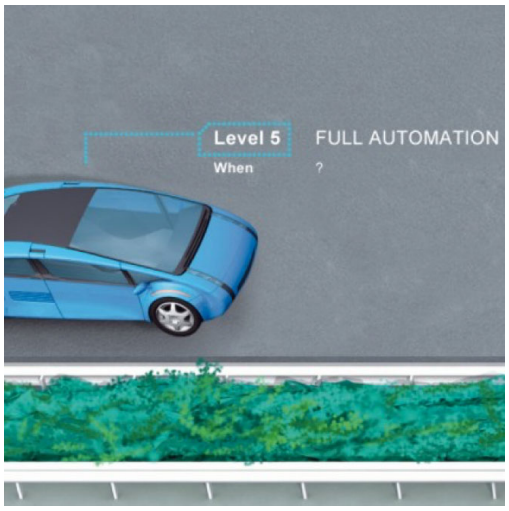
Bentley EXP 100 GT

So, is automotive veganism a fad? Time will tell, but it's clearly an increasingly strong car interior marketing lever at the high end—and it looks more and more likely to proliferate to more parts of more vehicles in more and more segments.

INTERIOR NEWS

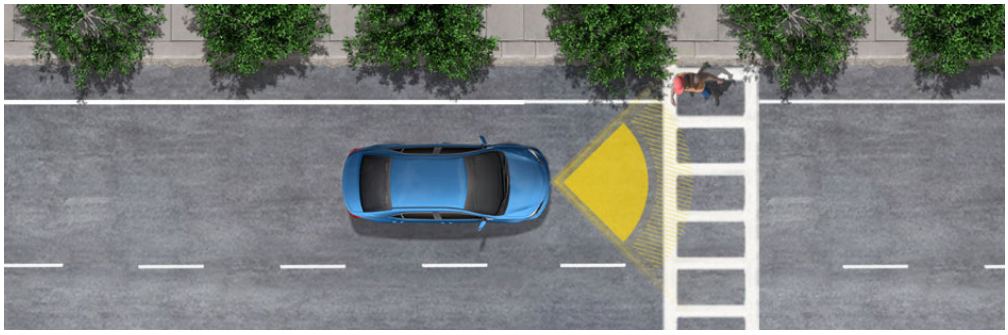
CAR MBS: A Look at the Auto Industry Revolution

The Center for Automotive Research's Management Briefing Seminar was last week in Traverse City, in northern Michigan, USA, and focused on the auto industry's revolution, across the spectrum of technology, strategy, mobility, policy, and manufacturing issues.



Automakers are finding the pursuit of fully autonomous Level-5 self-driving vehicles to be more expensive and technically complex than expected, said Farid Khairallah, ZF's portfolio director of safety domain control units. He said Level-2 self-driving technology, in which the vehicle can steer and stop itself but requires a driver to be seated behind the steering wheel, is more achievable for most automakers. But for a Level-5 vehicle to be 100 percent safe 100 percent of the time, to accurately recognize and correctly react to every traffic situation it will need a million times more computer processing power than today's vehicles. With such high computer capability, a car could become unreasonably expensive and technically complex. Khairallah said the associated electronics would need their own cooling systems, for example. More broadly, he said, "The challenge is, how do you validate and assimilate the system when you have 11 cameras and eight radars and five lidars? How do you collect and manage that data?"

Even getting to Level 2 has incurred high development costs and is forcing competing automakers to partner, he said: "A lot of players can't do it alone; homologation is very expensive. Collecting and storing data is very expensive. They are joining forces to share the investment to launch these technologies."



Toyota presented its updated safety suite, called Toyota Safety System 2.0, to further improve the collision avoidance and driver assistance suite. Wayne Powell, VP of Toyota's North American Electronic Systems division, called out the main tasks: "Don't hit anything. Don't get hit. Don't run off the road". Current onboard safety systems such as automated emergency braking are already reducing collisions, but enhancements that further improve automotive safety must be released as quickly as possible to save lives: "We have a moral obligation to deploy to save lives as soon as we can", said Powell, who is responsible for driver-assist systems development and applications, vehicle cockpit electronics development and evaluation, and vehicle wiring systems development.

Toyota Safety Sense 2.0 will help keep drivers in their lane, and will enhance safety in nighttime and low-light conditions. Toyota is working on two complementary strategies to improve safety through enhanced driver-assist systems, called Guardian and Chauffeur. Chauffeur is a Level 5 autonomous system, while Guardian is a technology suite that allows the vehicle to cooperate with the driver for improved safety.
Powell showed an example of a vehicle emerging suddenly between parked cars, with the Toyota vehicle initiating a lane change to avoid a collision.

Incremental steps such as Guardian are important not only for their enhanced safety, but also as a way to develop more acceptance of the advanced technology with the public. "A big element of acceptance is trust," Powell said.

JLR, BASF Cooperate on Plastic Recycling

Jaguar Land Rover are trialling an innovative recycling process to convert waste plastics into a new, premium-grade material that could feature on future vehicles.

Today, an unsettlingly large amount of plastic can't be recycled for use in automotive applications—especially in vehicle parts that must meet exacting safety and quality standards. JLR, working with BASF, are now part of a pilot project called ChemCycling that diverts domestic waste plastics away from landfill or incinerators and upcycles them into a new high-quality material.

Here's how it works: the waste plastic is transformed to pyrolysis oil using a thermochemical process, then this secondary raw material is then fed into BASF's production chain as a replacement for fossil resources; ultimately producing a new premium grade that replicates the high quality and performance of 'virgin' plastics. Importantly, it can be tempered and coloured making it the ideal sustainable solution for designing into dashboards and exterior surfaces in Jaguar and Land Rover vehicles.

JLR and BASF are currently testing the pilot-phase material in a Jaguar I-Pace prototype front-end carrier, overmoulding to verify it meets the same stringent safety requirements of the existing original part. JLR already have met their 2020 target for zero waste to landfill from their UK operations. This includes the removal of 1.3 million m2, of plastic from their manufacturing lineside, and replacing 14 million single use plastic items in business operations.

HiPhi Joins Premium EV Brand Roster

Human Horizon's premium HiPhi brand unveiled their production-ready prototype, the HiPhi 1, last week in Shanghai. Ding Lei and Phil Murtaugh, who led General Motors' car joint venture with SAIC, formally launched the EV brand with the introduction of the 1 prototype.
The 6-seater SUV is powered by two 200-kilowatt electric motors and can do 0–100 km/h (62 mph) in 3.9 seconds. It features a range of more than 600 km (373 miles) and has a 5G V2X enabled communication network and Level-3 autonomous driving.

They also presented what they're calling the Concept H ("H" for hyper velocity) That's a 3-seater

with a futuristic interior called RECESS, for Reconfigurable Cockpit Electric Steering System. It is a drive-by-wire system that allows the steering wheel to move to any of the three seating positions. In other words, the rear passenger would be able to drive the car...!

AV Trust Needs Shoring Up

The first J.D. Power Mobility Confidence Index Study found consumers in the US have a low level of confidence about the future of self-driving vehicles, posting a confidence index of 36 out of 100, and middling confidence in battery-electric vehicles, with an index of 55. J.D. Power collaborated with SurveyMonkey in polling consumers and industry experts and plans to measure consumer readiness for self-driving vehicles and EVs each quarter.

A self-driving electric shuttle bus at Brussels Airport

With an overall score of 36, consumers have a low level of confidence about the future of self-driving vehicles. Scoring lowest among the self-driving attributes are: comfort about riding in a self-driving vehicle (34) and comfort about being on the road with others in a self-driving vehicle (35). Experts recognize the importance of marketing self-driving technology to consumers to build progressively understanding, trust and acceptance, which is notably an industry-wide challenge.

Consumers and experts have divergent visions for availability: experts anticipate self-driving services starting now, with self-driving vehicles available for general purchase well down the road about 10 years away. Consumers predict each mobility option will be available in less than 10 years, with a significant market share in more than 15 years—perhaps an effect of endless mass-media stories about the subject along with most of a century's science fiction stories.

Although consumers are more hopeful than worried (65% vs. 34%) about the overall benefit of technology in their lives, 39% aren't excited about any self-driving technology including delivery services, public transit, taxi/ride-hailing service and personal vehicles. Overall, consumers still lack knowledge about self-driving vehicles, and technical failures, hacking, and liability are top concerns.

Overall, consumers are split on whether self-driving vehicles will improve traffic safety (40% better vs. 40% worse). Younger generations are more confident that safety will improve (52% of Gen Z, 45% of Gen Y), but 49% of Boomers think it will be worse than today. Consumers who say they know a great deal or a fair amount about self-driving vehicles believe such vehicles will improve traffic safety (59% and 52%, respectively).

Summer News, Renault e-Plein Air

As we are in the summer season—a record-breakingly hot one in much of the Northern Hemisphere—what's really needed is the perfect beach vehicle, isn't it? Voilà: the Renault e-Plein Air concept.

Renault 4 Plein air - 1968

Renault 4 e-Plein air 2019

It's an electrified replica of the original Renault 4L Plein Air, which was launched in 1968 but never really took off despite the great popularity of the Renault 4 range in general. Only around 500 Plein Airs were built, with most being sold for use as beach toys by the wealthy.

As with VW's iconic microbus re-imagined as an EV, though, this new Renault concept is an attention-grabber. Its silent, exhaust-free electric powertrain (from a Twizy) surely wouldn't disturb other beachgoers. The interior is rather spartan and minimal—perhaps that's for the best in a vehicle imagined as going near large amounts of water.

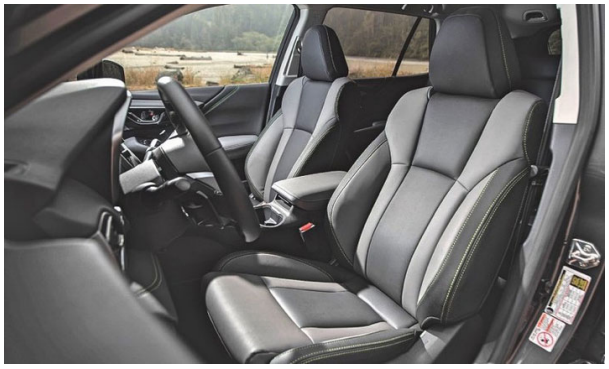
VW ID Buggy at Concours d’Elégance

After its world premiere at the Geneva Motor Show, VW's ID Buggy made its first big appearance at the Chantilly Arts & Elegance, Richard Mille—one of the most important events of its kind in addition to the design competitions in the Italian Villa d'Este and in California's Pebble Beach. The renaissance castle in the small town 50 km north of Paris is world-famous and gives the Concours d'Elegance a unique atmosphere.

The ID Buggy impressed with its puristic design, timeless and unmistakable at the same time. At one of the most prestigious beauty contests in the world, it won the hearts of the audience. Volkswagen chief designer Klaus Bischoff, who took part in the parade, was tickled with the presentation at the posh event, calling it "a sensational achievement for our design team that international automotive enthusiasts chose the ID Buggy at such a top-class event. It shows that our vision of e-mobility has struck a chord". He added that "Chantilly is an industry highlight where the most exquisite automobiles meet an interested and savvy audience. I cannot imagine a better environment for the future design of our brand".

The ID Buggy is designed to show that e-mobility can be fun. The clear design language promises a unique driving experience: the interior is indestructible and minimalist, consciously without a fixed roof and doors. It ties in with the cult concept of the Californian dune buggies of the 1960s and 1970s and is the modern interpretation of an icon.

Subaru's Outdoors-Proof Seat



Cloth, leather and *water-repellent* are the three seat surface options to be chosen from in the new 2020 Subaru Outback to be released later this year. The water-resistant option comes with front and rear seats finished in a new urethane material. If an occupant gets into the vehicle soaked from being caught in the rain or from tromping around in the damp outdoors, the seats won't absorb the moisture. Subaru is calling the durable, lightweight material StarTex, and they say it does not include any animal component in the material manufacturing process, making it vegan-friendly (again!). Additionally, the material does not contain polyvinyl chloride, phthalates, or chlorine—all plastics-related chemicals increasingly scrutinized for their effects on human health and the environment—and the material's backing contains 25 percent recycled polyethylene terephthalate from the likes of water bottles.

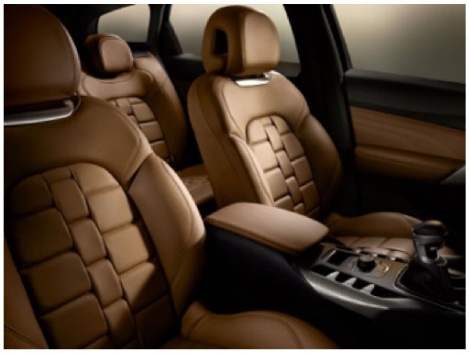
The soft-touch seats are also easy to scrub clean of mud and other debris, and won't get soaked even if the car is parked with windows open in a rainstorm.

THE DESIGN LOUNGE

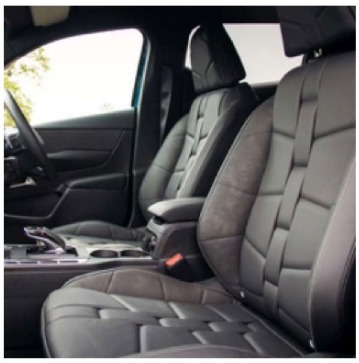
Brand Identity and Premium Trims

Brand identity for automotive interiors and the visual cues associated with it were—until recently—identified primarily using the instrument panel's forms, materials, arrangement of displays, and so on. When Citroën released their DS series a few years back, they introduced their "wristwatch design" trim as their brand identifier for the interior with great success. The unique 3-dimensional effect of the trim cover instantly identified with the Citroën brand while moving away

from the traditional 'H Pattern' trim design in favor of a design evincing a hgih-end wristwatch band.



Original Citroën 'wristwatch' design



Gen 2 'wristwatch' design

Since then, many automakers have been focusing on trim and stitching identifiers for their premium brands. English brands such as Bentley and Land Rover have leveraged their heritage of hand leatherworking using quilting and perforation that’s been trending in fashions the past few years.

Bentley Continental GT

Land Rover SV Coupe

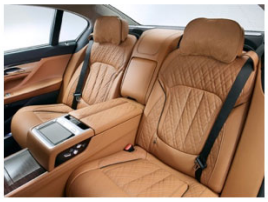
And now this trim execution technique is increasingly leveraged by nearly all of the premium brands, highlighting a 'hand crafted' execution that addresses desires in their customers. Unfortunately, this proliferation also dilutes the brand identifier effect. The question before each automaker's design studio becomes how unique a trim design must be to become a brand identifier—or is the 'hand crafted' execution enough?

Audi A8

Infinity QX50

Genesis G70

Jaguar F Pace



BMW 7 Series

Maserati Levante

Daimler used a specific trim design language as a Mercedes brand identifier. First seen in the S Class Coupe Concept in 2013 and then executed in the production E Class, the visual effect of flowing vertical lines along with a localized 'tie down' to the seat bolsters create a unique aesthetic for the Daimler brand.

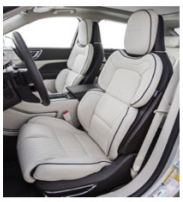
Mercedes S Class Coupe

Mercedes E Class

Lincoln has also used trim covers as a brand identifier, and expanded this to include a complete seating concept that visually and functionally identifies the Lincoln brand.

Lincoln Navigator Concept

Navigator Black Label



Continental Black Label

Nissan's Infiniti has moved beyond the quilting and perforation techniques to introduce a modern interpretation of the buttoning upholstery technique, thus creating an Infiniti-specific brand identity.

Infinity Q Inspiration

Infinity QX Inspiration

Infinity QX50 Concept

New interpretations of the classic hand-crafted aesthetic seem to be an effective method to highlight brand identity. By using trim solutions this seems to be an evolving practice.

NEWS MOBILITY

China's Lynk Floats Subscription Model

Instead of creating a traditional dealer network, China's Lynk & Co will offer subscriptions to customers, market its cars online, and sell through branded flagship stores and so-called "pop-up" stores.

In a recent interview with Automotive News Europe, Alain Visser, a veteran executive with experience working at Ford, General Motors and Volvo who now is CEO of Zhejiang Geely Holding startup Lynk & Co talked about his company's subscription offer as a main channel to enter the market: "Automakers risk being mere suppliers to companies that offer more mobility options. That could be their choice, but among volume manufacturers it will be about who offers the lowest price. That puts long-term profitability at risk. It's better to become a mobility company yourself", he said.

Lynk & Co has done research in Europe and the U.S., and they have found that when people stated

"I can't afford a car", they can spend as much as €500 a month for car rental, taxis, and public transportation, even if they don't knowingly add it all up. Contrast that with a living- or office-space lease: it specifies the monthly amount, you know you are spending the money, and you're ready for it.

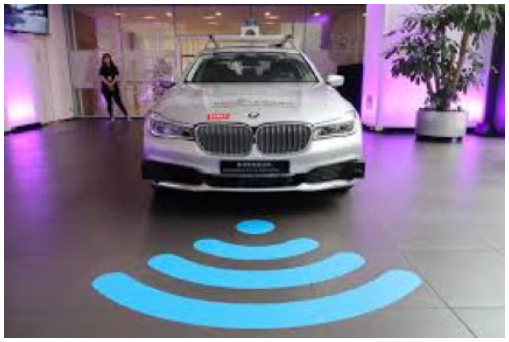
But nobody really knows yet what would be the right market price for mobility services. Pioneers are testing the market, and it will stabilize somewhere. Lynk is getting ready to have a go at it with a €500/month car-subscription offer.

Toyota's 2020 Olympics Plan

Toyota, as a top sponsor of next year's Summer Olympics in Tokyo, is beginning to showcase its mobility scenario planned for the event. Last week it previewed the first wave of gadgetry that will show what the automaker has in mind while they carry on working to get ready.

Toyota has spent billions of dollars on robotics and artificial intelligence for cars in recent years. But with just a year to go and the clock ticking, engineers concede they must still fine-tune some of their Olympics technology and aren't sure how some of it will even be used. Their shuttle is 3.9 m long, 1.6 m wide, and 2 m high. It will host 5 passengers in standard layout, or 1 wheelchair plus two more people.

JVs and Mergers & Pacts—Oh My!



Tencent, the Chinese tech giant that runs an expanding cloud computing business, is setting up a data computing and storage platform with BMW. Reuters reported that the pair plans to launch the computing center by the end of this year in Tianjin, a port city near Beijing. The tie-up came

months after BMW's earlier data expansion in the world's largest passenger car market. In February, Here—a Google Maps alternative partly owned by BMW—joined forces with Chinese navigation service Navinfo, which would help Here collect data locally. It's not much coincidence that Navinfo and Tencent both bought small shares in Here three years ago. As BMW gets more familiar with China's road conditions, there's no reason why it won't apply the data to its new ride-hailing venture.

Neolix in Mideast AV Accord

China's Neolix has signed a preliminary agreement with Middle Eastern e-commerce company Noon to test autonomous vehicles in Saudi Arabia and the United Arab Emirates.

Neolix will build driverless vehicles customized for the region's weather conditions, where temperatures can soar above 50°C (122°F) in the summer.

Noon, a joint venture between Saudi Arabia's sovereign Public Investment Fund and Dubai billionaire Mohamed Alabbar, will begin to focus on last-mile delivery services in certain areas of Abu Dhabi and Dubai over the next few weeks.

GM's Cruise Taps the Brakes on Robo-Taxi Rollout

General Motors' self-driving unit Cruise is holding off on its previous plan to deploy autonomous taxis by the end of this year. Auto and tech companies are struggling with the challenges of transitioning from human to machine drivers; Cruise CEO Dan Ammann says that while efforts are being accelerated to get its autonomous Chevrolet Bolts ready, it's not going to be able to validate their performance and safety in time to meet the 2019 target, which it set a year and a half ago.

GENERAL NEWS

Valeo Climb the Slope

Extract of J. Aschenbroich's Interview with Les Echos

"We are recovering: our results are in a phase of rapid improvement. Our profitability reached a low point in the second half of2018, after historic records in the first half.

"Our customer mix in China, which was extraordinarily favourable until 2017, became less so in 2018. But in the second quarterof 2019, we were in line with the market. The fall of the Chinese market, the world's largest, was stronger than we had imagined.This is the first crisis experienced by our teams on the spot. They had to react, reduce the breakeven point, adapt the factories.Obviously, margins have fallen in the country, but remain very satisfactory.

"The automobile is a cyclical market: these two halves of decline after ten years of growth probably reflect the downward phaseof the cycle. On the question of a deeper crisis, it is sometimes said that changes in consumer behaviour will make the car lessnecessary. We have done a lot of studies; we do not feel that this is the case. The need for mobility continues to exist, andshared mobility remains very limited. On the other hand, there is probably a phenomenon of waiting, linked to the difficulty ofchoosing today the type of vehicle that one needs, in a rather complex technological and regulatory environment.

"The market of electric vehicle is still small, but it is growing at 50% to 60% a year. 2020 will be a pivotal year in this respect: it will only be possible to achieve the European CO2 emission target of 95 g/km with strong hybridisation and [some] 100% electric vehicles.
The challenge will be at what rate batteries will lower their cost and increase their energy density...and how will consumers adapt.

"There are actually two different markets: driving assistance, which is growing by more than 20% a year, and we are very strong in that regard. And the autonomous vehicle, which itself has two segments: that of the individual car, which will not happen for at least ten years, and that of robotaxis, which [are now starting] to arrive."

Faurecia, Microsoft Pair for Future Cockpit

Faurecia will cooperate with Microsoft to create disruptive, connected and personalized services inside the vehicle cockpit of the future.

Combining expertise in edge-computing, artificial intelligence, cloud-based services, cockpit systems integration and consumer insights, Faurecia plans to collaborate with Microsoft to develop digital services based on the Microsoft Connected Vehicle Platform to reinvent the onboard experience for all occupants. Faurecia has also chosen Microsoft Cloud Azure as its preferred cloud platform.

Faurecia CEO Patrick Koller said "Consumers today expect digital continuity between home, office and car. The collaboration with Microsoft will enable us to offer disruptive experiences so that vehicle occupants can use their time for different activities such as immersive gaming or working. This is another key step in building our differentiating ecosystem to accelerate innovation".

Toyota in Top Slot for H1-2019

Six months into the year, Toyota has maintained its lead over VW and the Renault-Nissan-Mitsubishi Alliance, and also has increased its growth over the same period last year.

	H1-2019	YoY	Est. 2019
Toyota	5.46	4.1%	10.9
Volkswagen	5.36	- 2.8%	10.7
Renault-Nissan	5.08	- 8.6%	10.2

World's largest car makers

No small achievements, these, in light of the global auto market having peaked and entered what could be a prolonged coast-down. Toyota prepared for this over nearly ten years' time, and that preparation is now paying off for them.