DVN-I
Automotive Interior

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Editorial

Driverless…Or Driving Less?

Autonomous vehicles—or at least progressively more automated vehicles—are on today's agenda of any newspaper or conference about automobiles and mobility, in context of environmental concerns like climate change and air quality. At DVN-I, we analyze how autonomous technology enables new use modes in cars, and we keep track of new mobility business models.

Of the many driving futures one might imagine, is the autonomous-driving one really necessarily the best one? What if the best future isn't so much driverless as it is driving less? Firm answers aren't obvious; regulations and trends are going in multiple directions. Regulation authorities in the world's countries, within market and trading blocs, and at UN level are addressing progressively driverless situations including the ongoing deployment of level-3 AVs (autonomous vehicles). Many municipal authorities—cities, states and provinces, regions, etc—are creating real-life test areas for AVs, and automakers and tiered suppliers are reporting progress on testing. New alliances are popping up seemingly every day to generate and pursue new technology and/or mobility business models.

On the other hand, driving condition are getting more stringent, both through regulation (EU 40% cut in allowable-emissions, California at 50 miles/gallon fuel economy, and so on) and by city restrictions (tolls, diesel bans, pollutant thresholds, road closures, professional-drivers-only days, parking restrictions, and so on and on).

Traffic conditions could even get worse in the near term, as the first AVs will create temporary additional traffic with for instance empty cars searching around to get a parking spot. These effects, no matter how the human-driven and self-driving car mix evolves, will surely be decades long, as investment is huge to re-optimize infrastructure—everything from roads to parking lots and garages to driveways and sidewalks, parking meter arrangements, etc—so as to cater primarily for AVs.

So, what has this to do with vehicle interiors? From an interior perspective, it is certain that both

development directions are making vast opportunity to create new use modes, to invent new features, and to develop new technology. It's all very exciting! Of course, market volume can't be foreseen, and that's a major driver of investment levels.

So far, innovation efforts and openness to whatever goofy scenario can be dreamt of are generating many novelties, but also a great deal of innovation which is applicable to any new car, regardless of its automation or electrification level. Three passengers per car at least are already within autonomous driving scenario, drivers already need to be monitored to avoid drowsiness and cars are all connected, at least through a smart phone.

All in all, independent of driving scenario and external constraints, car interiors must provide and support greater safety and comfort on an ongoing basis, even as those words' definitions shift. At DVN-I, that's what we work to explore, explain, and report with relevant news and analysis to keep you well informed and up to date. Contact us today to get your subscription.

Philippe Aumont,
General Editor, DVN-Interior

In Depth Automotive Interior

IAQ Poses Tough Challenges

Out in the streets of today's developed cities, the air is typically much cleaner than it was seventy to twenty years ago, despite many more people driving many more cars over much more distance. That's a triumph of outdoor air quality science and engineering, worth celebrating, but there's still too much dirt in the air, and it can grow much more concentrated inside a car…and that's why IAQ (interior air quality) is a hot topic.

Interior air obviously comes from outside the car—from the lower layers accumulating the heavier pollutants. Researchers are now realizing the air inside our cars can be far worse—as much as fifteen times worse—than the outside air just a few meters away.

The focus on IAQ has gained traction in China because of heavy air pollution there—children are more sensitive to air quality while their lungs are developing. Polluted air harms children's ability to learn at school and may damage their DNA.

So high-powered in-car air purifiers have been progressively installed in cars since the '90s (IQ Air from a Swiss company for Daimler in the US, for example).

Car interiors create their own pollutants. Think about that new-car smell: it's VOCs (volatile organic compounds) coming from plastic outgassing, especially at high car interior temperatures, such as when a car is parked in the sun.

In parallel, air quality research is popping up everywhere, because of environment issues and increased population awareness about the topics, which means that consumers will progressively consider IAQ management capabilities as differentiating factors between cars.

A recent study by Emissions Analytics, an independent UK global testing and data specialist for real-world emissions and fuel efficiency of passenger and commercial vehicles, shows that among 11 types of car there's huge variation on the ability to purify incoming air, exposing those insides to ambient pollution with each breath. Nick Molden, its chief executive, told The Sunday Times: "Drivers can be exposed to high pollution levels while believing themselves to be protected by the air filtration and ventilation system".

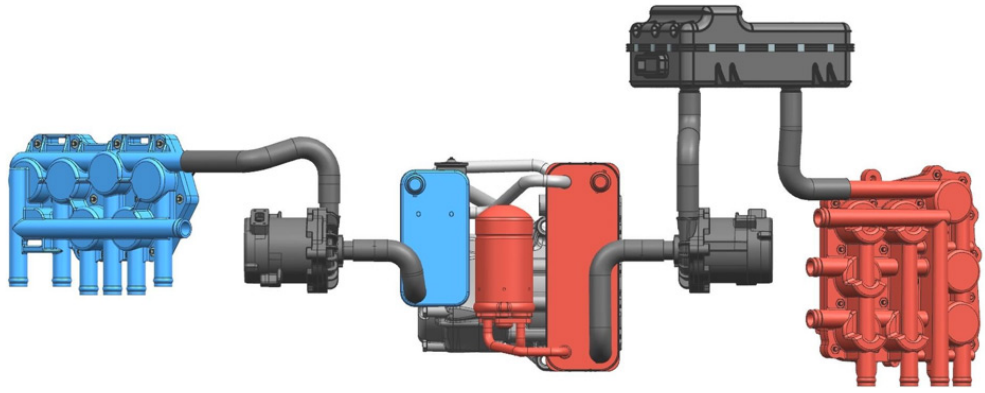
Numbers through the study are very much spread, from blocking 1% of external particulates (Toyota C-HR) to 90% (Mercedes E-class), including 43% (Jaguar E-Pace) 59% (VW Touran), 83% (Vauxhall Astra). Of course, one would need to compare development period and price of the various vehicles to get to a fair comparison.

The Society of Motor Manufacturers and Traders (SMMT) confirmed that the lack of regulation means car firms can use whatever specification of air filter they want, but said the industry is "working with policy makers" to decide if new rules are required. That's what will probably drive next steps, letting consumers decide if air purification systems are something that will make them choose this car over that one.

INTERIOR NEWS

Mahle's Better EV Cabin Heat

Due to the lack of available waste heat from a combustion engine, most electric vehicles today rely on resistive electric heaters to heat the cabin (and the traction battery) in wintertime. This extra load on the drive train battery in cold temperatures can reduce the cruising range of a fully charged electric vehicle by up to half. In summer as well, the cruising range is shortened by the additional energy required for cooling the drive train battery and the interior of the vehicle.



Mahle has a better idea. Their Advanced Engineering Thermal Management Director Laurent Art says Mahle's ITS (Integrated Thermal System) "can improve cruising range by between 7 and 20 percent, depending on the design, which drastically reduces the loss of cruising range in wintertime in particular".

The ITS from combines various thermal components into one system that functions in several modes. Central to its architecture is a semi-hermetic refrigerant circuit, comprising a chiller, a coolant-cooled condenser (icondenser), a thermal expansion valve, and an electric drive compressor. The icondenser and the chiller have the same function as the condenser and evaporator in a conventional refrigerant circuit. In this case, however, instead of exchanging heat with air, the

refrigerant exchanges heat with the coolant, thus generating hot and cold coolant flows. The ITS uses R1234yf as a refrigerant and conventional vehicle coolant as the medium for heat transport between the cooling circuit and the various heat sources and sinks in the vehicle.

Tests for control optimization and other purposes are currently being run in the Mahle climatic wind tunnel with the ITS installed in the vehicle. Together with American automakers, Mahle is working on implementing additional performance and cost optimizations.

A Steering Polygon for BMW's iNext

Show car 2018

Test vehicle 2019

The BMW iNext is scheduled to make its official debut in 2021 and it will herald a new era for the company. It will be the first model from the BMW Group where the driver is no longer required to take care of the task of driving but can still actively take command at any time. And it's fitted with a completely redesigned steering wheel. The company has teased the new steering wheel which will make its way on the iNext and it's different than anything you've ever seen on a car. It's shaped like a polygon and the company says that it is perfect for switching between highly automated and active driving. In addition, the steering wheel's unique contours - inspired by motor racing - optimizes entry and seating comfort as well as providing an enhanced view of the instrument cluster.

The advantages of this geometry come into play in particular when switching from highly automated to active driving. As compared to a circular shape, this makes it much easier to recognize the steering angle based on the position of the steering wheel. The moment the driver re-takes control of the vehicle, they can detect the current steering angle instantly.

Optical fibers integrated in the side sections of the steering wheel inform the driver of the availability of highly automated driving functions with colored signals, as well as indicating situations where the driver is required to take over active control of the vehicle.

The flattening of the lower section makes for enhanced comfort when entering and exiting the vehicle. It also increases freedom of movement over long distances in that it enables the driver to bend both their left leg—for example when using the Active Cruise Control function—and their right leg.

Polestar EV Keeps Trans Tunnel

Volvo's first Polestar battery-electric sedan will feature a design element that is the antithesis of an EV—a transmission tunnel. This transmission tunnel has nothing to do with power transmission; it's where the battery goes. This architecture has benefits for passenger roominess and console convenience, as well as its overall design.

By removing batteries from the rear-seat footwells, designers were able to lower the height of the Polestar 2 and create what Polestar design boss Maximillian Missoni calls a "sleek fastback silhouette". The battery layout also allows passengers to sit more comfortably, with a comfortable head clearance even in the rear, while the tunnel design acts like a raised center console and gives the performance sedan a cockpit SUV-like interior.

A central display is thin and a bit offset from the instrument panel, which gives an overall impression of space and lightness. This approach supports Polestar sedan strategy, using the Volvo Scalable Product Architecture platform. The car goes into production in China next year.

Woodbridge: Innovation in Canada

Woodbridge, an important seat foam technology company, is investing up to CAD $100m for creating and promoting innovation in Mississauga, a suburb of Toronto, Ontario, Canada. The effort includes Canada's contribution of up to $20m through the Strategic Innovation Fund (SIF) to grow the country's economy.

Woodbridge is a privately-owned company offering interior flexible molded foams, head rests and restraints, armrests, bolsters, as well as structural foam for automotive applications (as well as

non-automotive applications such as packaging, healthcare, and building products).
In addition to its manufacturing operations, Woodbridge offers a full complement of services including chemical research and development, product and process engineering, tooling, technical support and accredited laboratory testing.

The investment will permit Woodbridge to modernize two manufacturing sites in Ontario and the company will also establish a Center of Excellence where it will invest and centralize its global research and development activities in advanced materials and product design of molded foam products. This will happen with full integration into the local academic and research ecosystem.

Foam components are now much more complex, going to sub-system, integrating new categories of performance like safety with energy absorbing foam, climate comfort with climate control foam, structure with multi-layer foam, and textile with various foam-in-place technology, especially for small parts as head rests, armrests, and bolsters.

Audi Refreshes Q7: Look Inside!

Audi's big Q7 gets a hefty update for 2020. There are a lot of subtle exterior styling changes and a restyled dashboard with revised digital displays and improvements in standard equipment levels.

The facelifted Q7 features an updated exterior featuring a new-look grille and new LED headlamps. The platform's the same, but the new car is 11 mm longer. Inside, the focus is an update of the Q7's dashboard, which receives the latest version of Audi's twin-touchscreen MMI infotainment system. Then the actual interior design in the front cabin is pretty much a carbon copy of the Q8!

MMI (Multi Media Interface) consists of a single integrated interface, which controls a variety of devices and functions of the car. The system consists of the MMI terminal and the MMI display screen and retains the Audi Virtual Cockpit digital instrument cluster seen in previous model years.

As before, the Q7 will be available with up to seven seats across three rows. It is available with a variety of driver aids, including traffic light information, a traffic jam assist feature that can automatically accelerate and brake in stop and go traffic, and emergency assist, which can automatically bring the car to a stop if it detects a problem with the driver.

SAIC Reviving MG SUV as EV

In 1924 an icon was born at the Morris Garages in the UK. For years, MG built classic British sports cars that captured the world's attention. In 2007, Chinese manufacturer SAIC took over MG, and since then the British brand MG is no longer sold in continental Europe. In parallel, SAIC created Roewe to adapt the former MG/Rover for China.

The icon is now reborn for a new era. Updated, redesigned, electrified and relaunched for the road ahead. Having established a foothold in Britain in the low-price car market, the Chinese SAIC aims to distribute its electric SUV, the ZS EV, under the old English MG brand throughout Europe.z

The 4.31-meter-long electric car (14 feet and a couple inches) has been on the market in China since spring. This autumn, it rolls to Europe. Compact in size yet spacious, it comfortably fits up to five people, offering an extra-wide cabin, plenty of legroom and rear space with fully foldable back seats and clever storage space, such as the split-level trunk.

The European-designed interior, not definitively revealed, should features soft leather-look upholstery, 360-degree air vents, satin-chrome finishes, a soft-touch dashboard and steering wheel with in-built audio controls. The Panoramic Stargazer Sunroof, featuring retractable sunshade, dominates approximately 90 percent of the roof so passengers can experience more of their surroundings, making it one of the largest panoramic opening roofs in the small SUV segment.

The clever Yamaha 3D Sound Field allows you to direct audio to any point in the car, while an 8-inch touch screen connects to your smart phones. There's also Bluetooth hands-free and remote central locking. The reverse camera is helpful when maneuvering into parking spots or reversing out of driveways, displaying a clear view on the large Multi-Function display unit.

Ford Puma Interior Notes

The new Ford Puma is a major strategic step for brand success in Europe. That's why the company has significantly invested to launch this new model, rather than the traditional "save-money" incremental development for this kind of Mr. Everybody segment of vehicle.

New suspension and chassis parts were expensive, but the extra track width provided the Puma with not only better handling, but also more interior space. Research showed a need for more trunk space, so a target was set at 1 m minimum width (39.7") width, resulting in a trunk capacity of 456 L (16.1 cu ft). And the load bay floor can be raised to give a flat cargo area or lowered to prioritize space, plus it can be folded against the rear seats

These architecture and budget trade-offs allow an interior above segment. It is typical of a modern Ford, in that it's essentially the Fiesta's dashboard with its simple design, SYNC3 infotainment system and decent materials. But there are some bespoke features, like a digital display for the dials and, on some models, massaging front seats. In fact, both front and rear seats have zip removable covers allowing owners to not only mix and match patterns and colors, but also wash them.

"The original Puma was never a starting point – we never said 'let's design the new Puma'," says Leenarts. "In fact, calling it the Puma was pretty late in the design process, and came from customer clinics and journalists asking 'is that the new Puma?'. But since then we have been studying this car through the 'Puma lens', and apart from the position of the headlamps, the tight greenhouse area that's nestled in the body and perhaps the stance, there is nothing that's typically Puma. And yet, there is a Puma feeling about it."

THE DESIGN LOUNGE

Sports Car Cockpits; Design Language in the Age of UX

With the latest introduction of Chevrolet's Corvette, we can take a look at how the sports car cockpit interior has evolved and what may be in store for the future.

The sports car has traditionally had a very clear design language and aesthetic that was directly borrowed (influenced) from the racing cars of the day. This was also clearly associated with the brand language and identity of specific marques such as: Alfa Romeo with their twin binnacles, Porsche with the 5 dials and central rev counter and Chevrolets Corvette with the split cockpit.

With the addition of A/C, radios, navigation and UX functions, the traditional minimalism of the sports car cockpit has become more complex.

Alfa Romeo Spider 1970

Alfa Romeo 4C 2019

Porsche 911 1970

Porsche 911 2019

Chevrolet Corvette 1970

Chevrolet Corvette 2020

As the traditional theme of the sports car was inspired form racing cars, with additional street car functionality included, it may be time to look at what the current crop of racing vehicles have today.

Looking at the current crop of racing vehicles such as Formula 1 racers and the Ferrari F8, we can see that the cockpit has transformed from not only the traditional dial-type gauges but also what information is critical for the driver to monitor.

Ferrari F8

Petronas F1

Gone are the days of monitoring engine speed, temperature, oil pressure, etc, as most of these are all electronically monitored and controlled or completely eliminated with regards to electrically

powered drivetrains.
Clearly the functions required for racing vehicles are different than roadgoing vehicles but clarifying the critical functions for the driver was the ultimate goal for the examples shown above.

By using the appropriate technologies, such as head-up displays, that focus on the specific's requirements of driving (sports or race track oriented) while also accommodating the needs of today's drivers (navigation, communication, etc.) allows todays interior designers to refocus and minimize the sports car cockpit again.

Peugeot Head Medium Display

BMW Head Up Display

This is best visualized by comparing the current BMW Z4 cockpit to their own BMW M Next concept. The cockpit and cluster is reduced is far more driver oriented while also enabling the future sports car driver's needs.

BMW Z4 2019

BMW M Next concept

NEWS MOBILITY

Mercedes AVAS on EV

An EU Directive means that as of 1 July 2019 it is mandatory to install a warning sound generator in electric vehicles, so blind and vision-impaired people can detect and keep track of them in their vicinity, and similar legislation is progressing in other parts of the world. In newly certificated hybrid, electric, and fuel cell vehicles—including trucks and buses—the Acoustic Vehicle Alerting System (AVAS), as it's called, must be installed for the protection of other road users. In the EU the acoustic warning is mandatory up to a speed of 20 km/h (12 mph). The Directive formulates the

parameters for how an AVAS warning may and may not sound in great detail. This applies for example to the minimum and maximum sound volume, and to certain sound components.

It is subject to these and many other regulations that the sound experts of the acoustic test facility at the Mercedes-Benz Technology Centre (MTC) in Sindelfingen are working on giving a voice to their electrified Mercedes. Special microphones in the exterior sound testing facilities are used to develop an individually configured e-sound for each electric model. Simulations, measurements, evaluations and detailed improvements continue until the result is achieved.

As any audio warning, it has to be correctly perceived by the driver. During test drives, there is a particularly sensitive driver on board – the artificial head. This registers the tiniest noises, and comes impressively close to human hearing.

The Mercedes-Benz AVAS sound differs only slightly for the EU, Japan and China. There are other requirements for the USA, for example concerning the sound volume. Furthermore, the stationary vehicle must already generate a sound when a gear is engaged, becoming louder up to 30 km/h. Switching off the AVAS by the driver is prohibited in almost all countries.

Daimler, Bosch, official start for valet parking

Daimler and Bosch will start valet parking using autonomous driving technology in Stuttgart, Germany, after local authorities gave the automaker permission to start testing the technology.

The automated valet parking service will start at the Mercedes-Benz museum parking garage, using

infrastructure provided by Bosch and vehicle technology from Daimler, Bosch said.
It will be the first fully automated driverless system categorized as Level 4 automation which has been approved for everyday use, Bosch said.
The technology, accessed via a smartphone app, enables the car to drive itself to an assigned parking slot and park once the driver has left the parking garage. It will return the car to the drop-off point in the same way, the supplier said.
Bosch and Daimler have been cooperating on the development of fully automated driverless parking since several years.
"This approval … sets a precedent for obtaining approval in the future for the parking service in parking garages around the world," Michael Hafner, head of drive technologies and automated driving at Daimler, said in a statement.

Aiways U5 Trip to IAA

Chinese automaker Aiways is testing its battery-powered U5 on a marathon journey from China to Germany, where the SUV is scheduled to arrive in time for the Frankfurt auto show in September.

The 14,231-km (8,843-mile) trip will take an Aiways convoy through the Gobi Desert, Kazakhstan, Russia and into Europe from Finland, down to Germany. Engineers will test everything from the 'E-Drive' powertrain to the chassis settings and steering characteristics.

Two U5 prototypes left the city of Xian at the eastern end of the Silk Road in central China on Wednesday. Aiways aims for the cars to reach Frankfurt in the first week of September.

Aiways plans to launch sales of the U5 in Europe next April. U5 is a Q5 dimension type of SUV, with the battery pack sandwiched in the floor. It's a 5-seater, and interior technology includes a triple panel of screens in front of the driver, as well as a high-definition touchscreen in the center of the dashboard. The car is available with adaptive cruise control and autonomous low-speed parking.

We can hope for—and expect—a thunderous arrival at the IAA autoshow!

JVs and Mergers & Pacts—Oh My!

Iconiq Tianqi Meiya

Tianjin-headquartered EV startup Iconiq Motors has obtained the qualification to manufacture new energy vehicles (NEVs) by gaining equity interest in Tianjin Tianqi Group Meiya Automobile (Tianqi Meiya) after signing a stake transfer agreement on July 11 with Jing Hong Investment, who 100% owns Tianqi Meiya, according to official website of Jinghai District government in Tianjin.

Iconiq presented, at the last Shanghai Motorshow (as reported in DVN-I Report № 1), the "Muse" as new mobility concept car, and an SUV named Seven (as it is a 7-seater).

Magna BAIC

OEM and Tier 1 Magna, the Chinese group BAIC and the Zhenjiang government yesterday signed a framework agreement governing their joint venture in electric vehicle manufacturing to be located in Zhenjiang, China. The joint venture, with a capacity of 180 000 vehicles a year, will produce the Arcfox brand (owned by BAIC) from end of 2020, as well as EVs on behalf of other customers.

Magna and BAIC have already opened a joint engineering center in Zhenjiang last January to develop their next generation platform for electric vehicles, which will progressively include a new test center.

In 2017, BAIC's annual electric vehicle sales exceeded 100,000 units, making it the leader in its

domestic market for five consecutive years.

As a strategic partner of the Daimler Group, in which it has just taken a stake of around 5%, BAIC is also building an assembly plant in China dedicated to electric Mercedes.

Toyota BYD

BYD G6, already clones the Camry!

Toyota already announced recently the creation of a joint venture with Panasonic

for R & D and lithium-ion battery manufacturing to integrate this skill considered part of its core business.

The agreement concerns the development of sedans and SUVs and batteries that will equip these vehicles and others. These vehicles will be launched under the Toyota brand in the first half of the 2020s.

BYD (for "Build Your Dreams") was founded in 1995 for the manufacture of batteries and electric vehicles. BYD internally develops the essential components of electrified vehicles such as batteries, motors and power electronics. BYD has become the world's first mass-market PHEV in 2008. Since 2015, BYD's BEV and PHEV sales rank first in the world in four consecutive years

GENERAL NEWS

BMW, Daimler in AV Development Pact

BMW and Daimler will cooperate on automated driving. Representatives from the two traditionally-rivalrous companies signed an agreement for a long-term strategic cooperative focus on joint development of next-generation technologies for driver assistance systems, automated driving on highways, and automated parking—all to SAE Level 4. In addition, further talks are planned to extend the cooperation to higher levels of automation in urban areas and city centers.

A key aim of the pact is quick market launch of the technology, which is expected to feature in passenger car systems for private customers from 2024. The two companies will each implement the technologies in their respective series products independently. The accord will see more than 1,200 specialists working together, often in mixed teams. They will be based at locations including the BMW Autonomous Driving Campus in Unterschleissheim, near Munich; the Mercedes-Benz Technology Centre (MTC) in Sindelfingen, and the Daimler Testing and Technology Centre in Immendingen.

BMW Group have been working on highly automated driving since 2006 and established a non-exclusive platform with technology specialists, suppliers and OEMs to take it to series maturity. Since 2017, work in this area has been consolidated at the Autonomous Driving Campus in Unterschleissheim, just north of Munich, and the industrialization of the technology is being advanced with the support of partners.

Daimler have been working on series development projects not only for specific Level 3 vehicles but also for Levels 4 and 5. They've programmed their system in-house all along, and 2019 will see the launch in San José, California, of their first pilot program, with Bosch, on L4/L5 self-driving vehicles in urban environs.

Oliver Zipse is New BMW Chair

Oliver Zipse will assume the role of Chairman of the Board of Management of BMW AG effective on 16 August 2019. The company's Supervisory Board made this decision last week during its meeting in Spartanburg, South Carolina (USA).

Oliver Zipse will succeed Harald Krüger, who informed the Chairman of the Supervisory Board at the beginning of July that he would not seek a second term of office.

"With Oliver Zipse, a decisive strategic and analytical leader will assume the Chair of the Board of Management of BMW AG. He will provide the BMW Group with fresh momentum in shaping the mobility of the future," said Dr Nobert Reithofer, Chairman of the Supervisory Board of BMW AG.

Oliver Zipse, the designated Chairman of the Board of Management, has been a member of the Board of Management of BMW AG since 2015 and is currently responsible for the production division. He began his professional career in the company in 1991 as a Trainee and has since held various management positions, including as Managing Director Plant Oxford and Senior Vice President Corporate Planning and Product Strategy.

Manfred Schoch, Chairman of the Global Works Council and deputy Chairman of the Supervisory Board said: "The strong partnership between the Workers' Council and corporate management has a long tradition and is the foundation of our success story. We look forward to continuing this cooperation and shaping the future of the company together."

West European Car Sales Down Again

Western European new-car sales fell 8.4% year-on-year (YoY) in June, according to data released by LMC Automotive. The annualized selling rate also slipped back to 14.2m units a year in June, from 14.4m units a year logged in May.

- In Germany, sales decreased 4.7%
- The UK market was down 4.9%
- French car sales fell 8.4%
- Italian registrations were down by 2.1%
- The Spanish market fell 8.3%

For the year to date (YTD), Western European sales are down 3.5% YoY (World down 7.1%), although the selling rate has averaged a healthy 14.4m units a year.

LMC analyst Jonathon Poskitt noted that growth will be difficult to find in July and August. "These months saw inflated sales in 2018 due to purchases being brought forward ahead of WLTP implementation," he said. "Later in the year, the monthly comparisons with 2018 should be back into positive territory. However, it appears that it will be a case of sales playing catch-up to reach a very similar level to 2018, with substantial growth likely to prove elusive this year."

LMC forecasts the West European car market to reach 14.22m units in 2019, virtually flat on last year's total (14.19m units).

West European car sales by country, June 2019

	June 2019	June 2018	Change	H1-2019
W Europe	**1,356,000**	**1,481,000**	**-8.4%**	**7,660,000**
France	231,000	252,000	-8.4%	1,166,000
Germany	325,000	341,000	-4.7%	1,849,000
Italy	172,000	175,000	-2.1%	1,082,000
Spain	130,000	142,000	-8.3%	692,000
UK	223,000	235,000	-4.9%	1,269,000