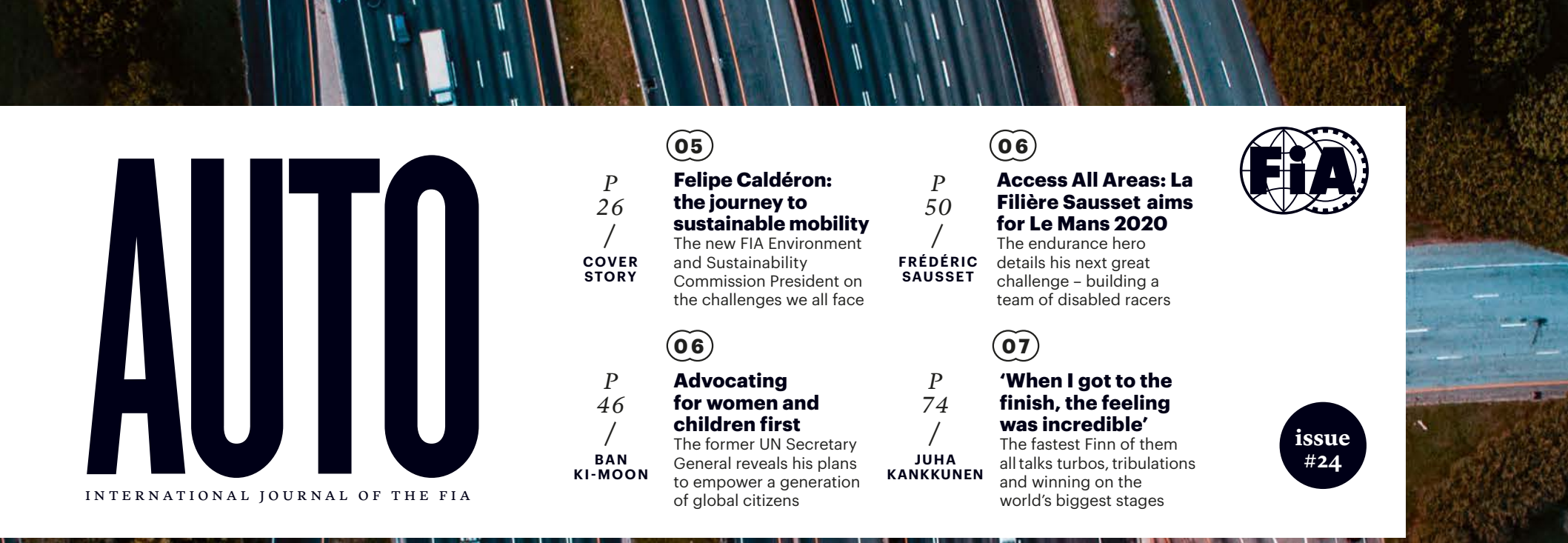

AUTO

INTERNATIONAL JOURNAL OF THE FIA

issue #24

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THE FIA

The Fédération Internationale de l'Automobile is the governing body of world motor sport and the federation of the world's leading motoring organisations. Founded in 1904, it brings together 236 national motoring and sporting organisations from more than 135 countries, representing millions of motorists worldwide. In motor sport, it administers the rules and regulations for all international four-wheel sport, including the FIA Formula One World Championship and FIA World Rally Championship.

THE FIA FOUNDATION

The FIA Foundation is an independent UK-registered charity that supports an international programme of activities promoting road safety, the environment and sustainable mobility. It was established in 2001 with a donation of $300 million from the FIA and is governed by a Board of Trustees. Among its activities, the Foundation participates in various UN road safety and environment-related partnerships and is a member of the UN Global Road Safety Collaboration.

THE GLOBAL INSTITUTE

The Global Institute for Motor Sport Safety is an international organisation based in Switzerland that undertakes research to improve motor sport safety worldwide. As the safety research partner of the FIA, it conducts practical research at all levels of motor sport, from professional categories to grassroots racing. It aims to provide motor sport with the means to operate as safely as possible, and to use safety research for the benefit of public roads and society in general.

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Dear reader,

The cover story of this edition of AUTO features FELIPE CALDÉRON, the former President of Mexico and the new president of the FIA ENVIRONMENT AND SUSTAINABILITY COMMISSION. In this role, he has joined us in working towards a future where mobility and motor sport will be genuinely sustainable, all over the world. In an exclusive interview conducted during the recent FIA MOBILITY CONFERENCE in Montevideo, he explained how this goal is achievable, not just in theory but in practical terms.

We also bring you two more interesting interviews with political personalities from the world stage: FORMER SECRETARY-GENERAL OF THE UNITED NATIONS BAN KI-MOON and EUROPEAN COMMISSIONER FOR TRANSPORT, VIOLETA BULC. Driver safety is a priority for the FIA and the HALO DEVICE is an important step forward. It generated much discussion when it was first introduced, but today it is considered essential and the facts are there to prove it. In this edition of Auto we have a detailed analysis of TADASUKE MAKINO's accident in the F2 race at Barcelona, as well as the still vivid memory of CHARLES LECLERC's crash in the Belgian F1 Grand Prix, from which the talented youngster emerged unscathed.

Motor sport is becoming ever more achievable for those with disabilities and, once again, this has been demonstrated by the hugely courageous FRÉDÉRIC SAUSSET. Having amazed everyone by taking part in the Le Mans 24 Hours in 2016, this year he took on another incredible challenge, creating a team of disabled drivers to take part in a full season of endurance racing. Elsewhere, our series of profiles of the major players in the motor industry continues with a profile of HIROTO SAIKAWA, President and CEO of Nissan, the car firm that, more than any other, has put the electrification of its range at the centre of its long-term development plan. In the history section, we have a profile of rally great JUHA KANKKUNEN, who shared some of his most memorable moments with us.

Finally, the country chosen in the section devoted to the FIA family is THE NETHERLANDS.

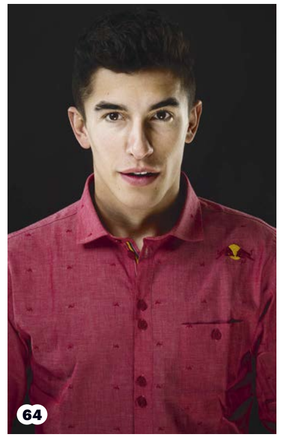
I hope you find this issue interesting and, as ever, if you have any suggestions on how we can make it even better, please let us know.

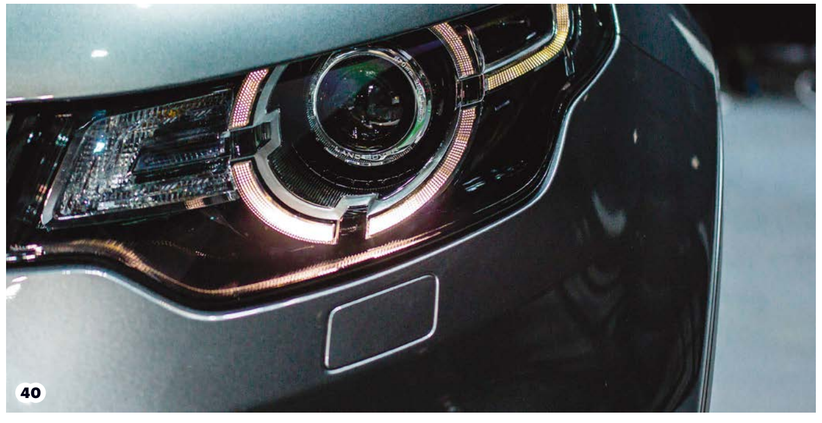
Enjoy the read,

JEAN TODT,
FIA President

contents

From the environmental efforts of the FIA's Felipe Calderón, to the WRC legend that is Juha Kankkunen, this is AUTO





FIA-CIK KARTING

CLASS KINGS CROWNED

The winners of the FIA Karting European Championship OK and Junior titles were decided at the Kart Grand Prix of France in August, with German Hannes Janker and Estonia's Paul Aron walking away with the respective laurels despite not being on top form at the Aunay-les-Bois/Essay event. Victory on the day went to a dominant Dexter Patterson in the OK class and Gabriele Mini in Junior. Janker, starting 15th in the Final, was forced to retire on the first lap but with 77 points had enough in hand to beat another Briton Harry Thompson to the OK title. FIA Karting Vice-President Kees Van De Grint said: "Essay again offered a fantastic karting weekend. The site and the circuit have been beautifully prepared and showcased."

THOMPSON STILL ONE TO WATCH
Despite his best efforts, Harry Thompson had to settle for second in the FIA Karting European Championship's OK class behind Hannes Janker – and second in the Final at Essay to fellow Brit Dexter Patterson. The 14-year-old was picked to be part of the Red Bull Junior Team this year having achieved great success in OK Junior competitions in 2017.

LE MANS CLASSIC

A FRENCH REVELATION

In soaring temperatures, more than 135,000 fans gathered for the 2018 Le Mans Classic, the ninth edition of the biennial event held at the 8.4-mile Circuit de la Sarthe in July. Some 700 cars returned to the famous French track to compete over a total of 18 races at the only event to take in the full circuit other than the Le Mans 24 Hours. Highlights included a packed Group C field, one-make Porsche (marking the 70th anniversary) and Jaguar Challenge races plus a Global Endurance Challenge demo. Among the 1000-plus drivers taking part were 11 Le Mans winners: Jurgen Bärth, Derek Bell, Romain Dumas, Löic Duval, Jan Lammers, Gerard Larrousse, Klaus Ludwig, Jochen Mass, Stephane Ortelli, Henri Pescarolo and Marco Werner.

BEWITCHED BY A CHEVRON B8 Henrique Gemperle and Marc de Siebenthal (pictured) took to the wheel of a 1969 Chevron B8 BMW for this year's Le Mans Classic, competing in the Plateau 5 races for cars from the late '60s and early 70s. A 1971 Ligier JS 3 DFV won the first two encounters and a 1972 Duckhams Ford the final group event. Gemperle/de Siebenthal's best result was 18th in race one.

01

NEWS

In this issue: Mercedes reveals details of autonomous vehicle fleet; VW research suggests automated braking could slash commercial vehicle accident rates; FIA hosts first Women Drivers' Assessment Programme; Volvo calls for international safety standard for autonomous cars

Mercedes unveils vision of 'on-demand, sustainable' autonomous mobility

Mercedes has unveiled its latest future mobility concept – an autonomous, customisable vehicle that blurs the lines between people carrier and commercial transport.

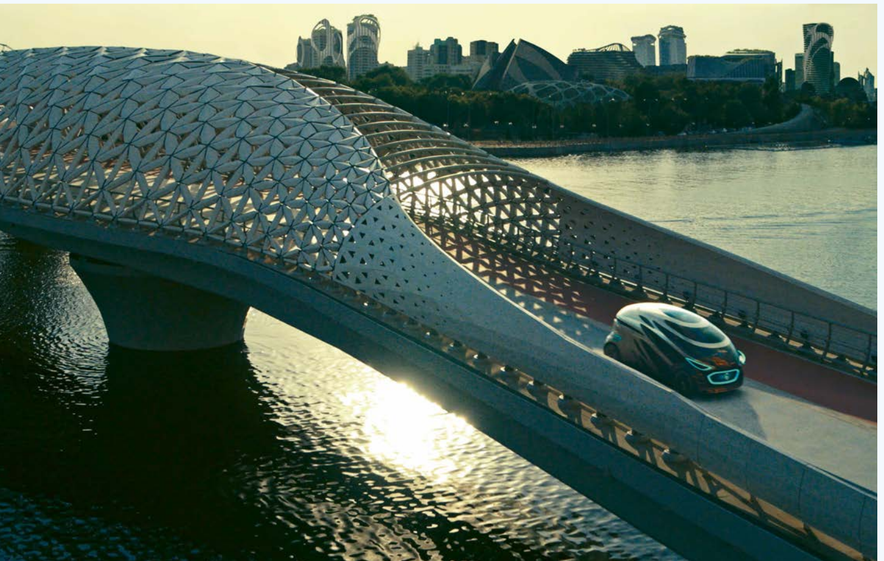
Dubbed the Vision Urbanetic, the German automaker says the vehicle "eliminates the separation between people moving and goods transport, enabling on-demand, sustainable and efficient movement of people and goods."

The concept is based on a self-driving, electrically-powered chassis that can utilise switchable bodies for people moving or goods transport. As a ride-sharing vehicle, Vision Urbanetic can accommodate up to 12 passengers, while the cargo module can carry up to 10 EPAL pallets. A 3.70-metre long load space fits into a total vehicle length of 5.14m.

The modules are switched either automatically or manually, with Mercedes saying that the automated process takes only a few minutes. The system is based on an autonomous driving platform onto which the respective bodies are fixed. The platform incorporates all the driving functions, meaning the autonomous chassis can make its way to its next job location without a body attached.

The mobility concept also incorporates an IT infrastructure that analyses in real time the supply and demand within a defined area. The result is a self-driving fleet, with routes planned on the basis of current transportation needs. Using a concert as an example, Mercedes says data captured by the vehicle control centre – which collates and analyses needs – could be used to identify a crowd of people gathering in a certain area. It could then quickly send appropriately equipped vehicles to the location and efficiently satisfy the increased demand.

The German manufacturer has joined a growing number of companies looking at multi-use autonomous mobility solutions. Earlier this year, at the Consumer Electronics Show in Las Vegas, Toyota revealed its 'e-Palette' concept – a "scalable, customisable vehicle for a range of Mobility as a Service businesses".



Mercedes' Vision Urbanetic vehicles would transfer people or goods within a defined area based on current demand.

Latin American and Caribbean children 'need urgent action'

Governments and cities across Latin America and the Caribbean must act urgently to combat road traffic injury – the leading cause death for youngsters aged five to 14 in the region – according to a new report published jointly by UNICEF, Save the Children, Fundación Gonzalo Rodriguez and the FIA Foundation.

'Streets for Life: Safe and Healthy Journeys for the Children of Latin America and the Caribbean' highlights how those in low-income communities are most at risk of suffering from the combined health impacts of road traffic. Related injuries are a major health burden on the region's children, where nearly 50 are killed on the roads each day, and it is the second leading killer of adolescents aged 15 and over.

High rates of motorisation and inequality across the region, combined with a widespread lack of protection on the roads, are posing intolerable health burdens upon young people, while millions more live in areas that dangerously exceed air pollution limits.

The report calls for action and funding from governments, donors and the leading agencies tasked with addressing child health, and was launched to an audience of government agencies, road safety activists and NGOs at a Buenos Aires child road safety conference.

Saul Billingsley, FIA Foundation Executive Director, said: "Our children are facing a public health epidemic resulting from road traffic. We need a regional action plan. Latin America and the Caribbean must face up to the intolerable health burdens placed on children."

FIA Foundation Executive Director Saul Billingsley wants action to help children in Latin America and the Caribbean avoid road traffic injury.

Mazda to work with Saudi oil firm on efficient engines

Mazda has announced the start of a joint research project with Saudi Aramco, the state-owned oil company of the Kingdom of Saudi Arabia, and Japan's National Institute of Advanced Industrial Science and Technology (AIST) aimed at making internal combustion engines more efficient and reducing carbon dioxide emissions. The project focuses on developing a low-carbon fuel alongside research into internal combustion engines that use the fuel.

According to the 'Global Transport Outlook to 2050' report from the International Energy Agency, 84 per cent of vehicles globally will still make use of combustion engines in 2035, and as such Mazda's project will investigate effective carbon dioxide reduction from a 'well-to-wheel' perspective, considering every step in the fuel life cycle.

As part of the project, Saudi Aramco will develop a fuel based on a refinery process that results in lower carbon dioxide emissions, and Mazda and AIST will research and develop a high-efficiency engine to run on the new fuel.

The joint research project forms part of the 'Sustainable Zoom-Zoom 2030' plan for sustainable technology development, announced last year.

Mazda has joined work to develop a combustion engine that runs on low-carbon fuel.

VW believes almost 2,500 accidents involving commercial vehicles could be prevented each year with the use of AEB systems.

Autonomous braking systems could reduce crashes by 38 per cent – Volkswagen

Research conducted by Volkswagen in the UK suggests that fitting autonomous emergency braking systems as standard on all commercial vehicles has the potential to prevent almost 2,500 crashes per year in the country.

According to the manufacturer's analysis of UK Department for Transport van accident statistics, some 2,496 incidents involving vans weighing up to 3.5 tonnes could have been avoided if autonomous emergency braking systems had been fitted – preventing 348 deaths and serious injuries where the first point of impact was the front of vehicle and involved other vehicles, pedestrians and cyclists.

Utilising data from the UK insurance industry's safety technology expert Thatcham Research, Volkswagen also suggests that across the car industry, autonomous emergency braking (AEB) has the potential to save 1,000 lives and 120,000 casualties in the UK over the next decade, with AEB leading to a real-world accident reduction of 38 per cent according to vehicle safety.

Carl zu Dohna, Director of Volkswagen Commercial Vehicles, said: "Autonomous emergency braking systems mean safer vehicles, fewer accidents and therefore reduced downtime and lower costs for fleets – as well as the potential to save lives. These are vital goals for any vehicle manufacturer."

AEB systems use a radar built into the front of a vehicle to recognise critical distances to the vehicle or object in front. In the event of a potential incident, the system warns the driver through audio and visual cues to brake, and where the driver fails to react sufficiently it activates the brakes in progressive stages to prevent a collision.

NEWS FIA holds first Women Drivers' Assessment Programme to benchmark female racing talent

Fifteen female drivers competing in a variety of categories gathered at Spain's Circuit de Navarro recently to take part in the first FIA Women Drivers' Assessment Programme – a joint initiative by the FIA Women in Motorsport Commission and FIA Drivers' Commission.

As part of the FIA's commitment to boosting female participation in motor sport, the assessment was designed to deliver a clear overview of the potential of drivers from different disciplines of international motor sport.

In all, 13 nationalities from across four continents were represented and each driver was provided with equal track time over two days, in both a Formula Renault 2.0 car and a GT4 Porsche Cayman. Over the course of the event, FIA-nominated technical and engineering specialists benchmarked the drivers' performance relative to reference laps set by two professional drivers, evaluating them against criteria including overall speed, technical feedback and approach, response to set-up changes, consistency and progression.

Commenting on the assessment programme, which is set to continue within the context of the Women in Motorsport Commission's long-term strategy, FIA Women in Motorsport Commission President Michèle Mouton said: "The commission is continually pushing to create new opportunities for women in our championships, and this assessment was important to put us in a stronger position with teams and manufacturers in the future.

"It was interesting that the drivers didn't all know about each other, and also for them to see that there is a pool of women at a very good level."

FIA Drivers' Commission President Tom Kristensen, who is also an ambassador for the FIA's Girls on Track Karting Challenge, added: "The first Women Drivers' Assessment Programme has been invaluable in providing us with the hard data to support what our detection activities have already revealed: there is a burgeoning pool of quality female drivers performing at a very high level and well prepared for progressing to major championships.

"This collaborative initiative with the FIA Women in Motorsport Commission will better inform the long-term strategy for developing opportunities for women in motor sport, for those already performing at an advanced level, but also in tailoring detection initiatives such as the Girls on Track Karting Challenge through which we will seek to inspire the next generation of young female drivers."

FIA Women Drivers' Assessment Programme – the participants

DRIVER	CURRENT ACTIVITY
Amna Al Qubaisi (ARE)	FIA Italian F4 Championship
Beitske Visser (NLD)	GT4 European Series
Carmen Jordá (ESP)	Former Development Driver, Renault Sport F1 Team
Christina Nielsen (DNK)	2018 Le Mans 24Hrs, P6 GTE AM/IMSA, Porsche Motorsport North America
Gosia Rdest (POL)	GT4 European Series
Jamie Chadwick (GBR)	British Formula 3 Championship
Laura Kraihamer (AUT)	GT4 European Series/VLN1 and VLN2, plus Nürburgring 24Hrs race
Lilou Wadoux (FRA)	Rencontres Peugeot Sport/208 Racing Cup
Marta García (ESP)	Karting
Michelle Gatting (DNK)	DST Danish Super Tourisme/Euro Nascar Series
Mikaela Åhlin-Kottulinsky (SWE)	STCC Sweden
Natalie Decker (USA)	ARCA Racing Series
Rahel Frey (CHE)	ADAC GT
Sophia Flörsch (DEU)	FIA Formula 3 European Championship
Tatiana Calderón (COL)	GP3 Series

Participants in the first FIA Women Drivers' Assessment Programme (above) were tested at the wheel of a Formula Renault racer.

Volvo believes autonomous vehicles should speak a universal language as a means of safe communication for road users.

NEWS Volvo wants international safety standard for autonomous cars

Volvo is calling for an international safety standard for autonomous vehicles as it conducts further research into the future of automotive technology.

The Swedish automaker believes a major part of everyday traffic interaction is learning about another driver's intentions, however autonomous vehicles take that away from road users in favour of onboard communication technology. Volvo's engineers want to establish a safe means of communication between fully-autonomous cars and other road users, creating a universally applicable standard.

"We strongly believe this communication method should be a universal standard, so that all road users can communicate easily with any autonomous car regardless of which maker built it," said Malin Ekholm, Vice-President at the Volvo Cars Safety Centre. "But it is also important that we do not instruct others what to do next in order to avoid potential confusion. Our research shows this is the safest way for fully-autonomous cars to communicate with other road users."

As part of this objective, Volvo has presented a comprehensive look into the future of transport with its '360c' concept.

"The 360c explores what becomes possible when we remove the human driver – it's a glimpse at how autonomous technology will change the world as we know it," added Mårten Levenstam, Senior Vice-President of Corporate Strategy at Volvo.

NEWS FIA attends IOC eSports forum on gaming's Olympic future

The FIA, in its capacity as an Association of IOC-Recognised International Sports Federations (ARISF) member, has attended an eSports Forum organised by the International Olympic Committee and Global Association of International Sports Federations (GAISF), of which it is also a member.

The forum, held in Lausanne, Switzerland, was designed to build understanding and set a platform for future engagement between the eSports and gaming industries with the Olympic Movement.

Participants included more than 150 representatives from the eSports and gaming scene – players, teams, publishers, media, sponsors and event organisers – and the Olympic Movement: National Olympic Committees, International Sports Federations, athletes, partners, broadcasters, the IOC and GAISF.

The forum explored areas of commonality and potential collaboration, including the question of whether eSports could be recognised as a sport and in which form they could be represented within the Olympic Movement. An organisation does not currently exist that represents eSports globally and could align with the Olympic values, rules and regulations. For this reason, the consideration of whether eSports could be included on the Olympic programme was not an immediate goal of the eSports Forum.

The forum heard how gaming is now a regular activity for more than two billion people worldwide. Around 380 million regularly watch some form of eSport – a figure set to grow to 600m within two years.

It was agreed that a number of common values have been identified between both worlds, including passion and a commitment to excellence. The forum heard how when attached to a real-world sport, eSports can play an efficient role in educating people on the rules of the sport and for stewarding/refereeing purposes as action can be viewed from multiple angles.

Virtual sports were praised as a good platform from which to promote gender equality and accessibility, with eSports easily available to disabled sports fans.

And they were deemed to be valuable gateways for recruiting young competitors to real-world sports. Formula 1 Managing Director, Commercial Sean Bratches spoke about the its eSport's programme, launched last year, which now has 40,000 regular players.

The IOC and GAISF will now establish an eSports Liaison Group to continue communication between the Olympic Movement, eSports and gaming stakeholders.

Forty F1 eSports players recently competed in a Live Draft event in London, where teams of 'drivers' were chosen by real-world F1 teams to compete in a virtual championship.

NEWS Real-world emissions tests show new vehicles missing targets

Most of the newest diesel cars in European cities and throughout the continent are still polluting the streets with nitrogen oxide (NOX) emissions up to 18 times the levels set by Euro vehicle standards, says The Real Urban Emissions (TRUE) Initiative, which launched its car ratings scheme and checker in June.

Measurements of the real-world emissions of more than 350,000 cars on European roads were used to create an innovative and interactive new database ranking vehicles' NOX emissions. The results confirm that real-world NOX emissions are systemically much higher from diesel cars, and this holds true for even the newest (Euro 6) models. All Euro 6 petrol cars, in contrast, received a 'good' or 'moderate' rating. Key findings for Euro 6 vehicles were that four manufacturers had average emissions of more than 12 times above the approval limit, while all diesel models tested exceeded the NOX emissions by more than twice the type-approval limit.

FIA Foundation Deputy Director Sheila Watson has joined calls for greater transparency on real-world emissions tests and targets.

TRUE is a partnership of the FIA Foundation, the International Council on Clean Transportation, the Global New Car Assessment Programme, Transport and Environment, and C40 Cities, which is seeking transparency in the public debate on vehicle emissions and urban air quality.

Sheila Watson, the FIA Foundation's Deputy Director, said: "The impact of dirty air on those of us who live in cities is terrible. We are delighted to support the TRUE initiative because testing real cars on real roads tells us what is really going on, and enables better policy to address this awful health hazard."

The karting demo at the FIA Regional Sport Congress in Rwanda.

NEWS FIA launches karting in Rwanda

The FIA has launched the first-ever karting competition in Rwanda as part of an initiative to increase grassroots motor sport activity in Africa.

With interest in motor sport continuing to rise in East Africa, National Sporting Authority the Rwanda Automobile Club (RAC) was keen to present karting alongside a series of other racing disciplines, with the aim of increasing the number of overall licence holders during the next five years.

The presentation formed part of the FIA Sport Regional Congress at the Kigali Convention Centre in Rwanda, which was attended by FIA President Jean Todt, FIA Deputy President for Sport Graham Stoker, RAC President Christian R Gakwaya and FIA Vice-President of Sport for Africa Surinder Thatthi.

"It is through grassroots motor sport that we must seize the opportunity to build even more compelling chapters for Africa," said President Todt. "This is to ensure that affordable and sustainable motor sport can continue to flourish here."

"Many of the disciplines that African motor sport was synonymous with, which sadly disappeared for a time, are returning," he added. "We will welcome the return of World Rallycross to Cape Town in November and the Safari Rally has become an official World Rally Championship candidate event for 2019."

NEWS Formula E set for record 22 cars at Season Five opener

Formula E's 2018/19 season will feature 11 teams in a championship that visits 12 cities, including a second new event in China.

For the first time in the history of the FIA championship a record 22 cars will be present at the season-opener at Ad Diriyah in Saudi Arabia. This includes new entries from the BMW I Andretti Motorsport team, Mercedes affiliate HWA and Nissan e.DAMS.

Teams will be fielding the all-new 'Gen 2' Formula E car that features a sleek redesign of the bodywork and is fitted with a battery that is designed to last the entire length of a race distance. The car will also feature the new Halo cockpit protection device, as seen in Formula 1 and F2 this year.

In the races, drivers will no longer run to a set number of laps but for 45 minutes plus an additional lap. They will also be awarded bonus points for the 'most power-efficient' race as oppose to the fastest lap.

Official pre-season testing will take place at the Circuit Ricardo Tormo, in Valencia, Spain, from October 16-19. Following the season-opener at Saudi Arabia in December the teams will visit Marrakech in January next year.

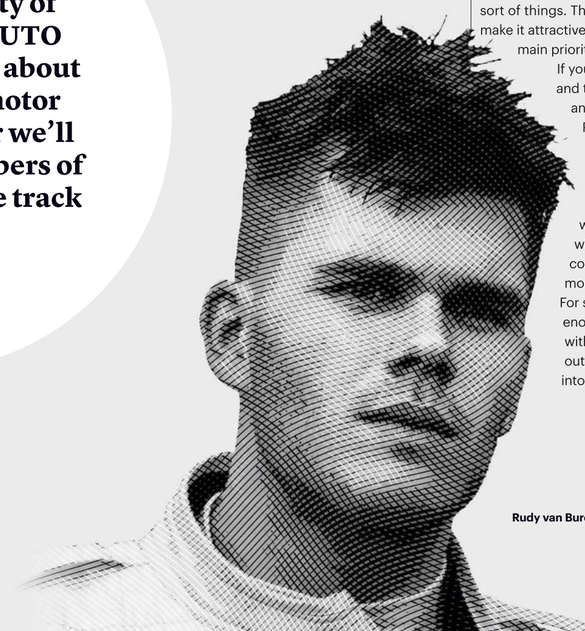
This will be followed provisionally by a race in Mexico City, then two races in China at Hong Kong and Sanya, Rome, Paris, Monaco, Berlin, a race in Switzerland and finally a double-header in New York City.

Formula E's new 'Gen 2' car is designed to last a whole race distance, with drivers rewarded for running the 'most power-efficient' race.

QUESTION:

'CAN E-RACING ATTRACT A NEW GENERATION OF MOTOR SPORT FANS AND COMPETITORS?' 02

With the popularity of eSports soaring, AUTO asked three experts about the potential for motor racing and whether we'll see increasing numbers of gamers taking to the track



Rudy van Buren

RUDY VAN BUREN

WINNER, WORLD'S FASTEST GAMER; OFFICIAL McLAREN F1 SIMULATOR TEST DRIVER

Yes, if you look at the amount of attention eSports is getting and at the racing scene, it is becoming so much more accessible for everyone. Back in the early days it was always out of reach; now, if you walk into a game store, there are so many racing games in there which are eSports-related.

Everybody nowadays has heard about eSports, but by walking into a store, seeing these games and knowing these are used with eSports, I think it definitely attracts a new generation of people just because they see it everywhere and want to try it.

Playing the games themselves gives people an insight as to what's going on in motor sport. Numerous people have watched Formula 1 races and don't have a clue what's going on, or they look at the pit-stops and wonder about what's happening. By playing the game people start to see different things like strategy, tyre compounds and all those [questions] get answered.

I'm always interested in the 'real deal', so to speak. You play the games and its cool, but if you see your hero or favourite character race in real life, you want to know how he does it and you kind of get hooked onto the real thing.

At least for me, if you play something like a skateboarding game and you've got your favourite character but you've never seen the guy in real life, then all of sudden you see them on TV, you're an instant fan because you play with them in the game.

There are also big names out there, big teams that have shadow projects and those sort of things. They combine these worlds, make it attractive for everybody and that's the main priority.

If you look at the GT Academy and take Jann Mardenborough as an example, he started on the PlayStation and now he is living in Japan, racing in multiple classes there, so you will see guys step up through eSports.

I'm looking at it myself as well, because you can see after winning the World's Fastest Gamer competition last year that more and more real-life things are coming up. For selected people who are lucky enough to be in a position to get with a team and everything works out, you'll see them taking the jump into car racing.

JULIAN TAN

FORMULA 1 HEAD OF GROWTH AND ESPORTS

When we announced last August that Formula 1 would get involved in eSports, we took a dive head-first into a burgeoning industry in which we saw massive potential for growth and synergies.

Twelve months later we are well into our second season, with millions of views online and on TV, a world-first in motor sport with our inaugural Pro Draft, participation from the official F1 teams and with tens of thousands of hopeful sim racers looking to getting involved.

At the crux of F1's involvement in eSports is a desire to reach out to a new audience – one that is young, digitally-savvy, global and growing rapidly – to secure the fans of the future. Whether through competitive gameplay on our official F1 game, or using F1 Esports as an experiential entry point into the sport, for us eSports is a unique asset aimed at attracting a new generation of motor sport fans.

To my mind, there are three core reasons behind the rapid growth of eSports in the world of motor sport and F1.

Firstly, there are great similarities between virtual racing and real-life racing. Unlike other sports, where being good at the video game doesn't necessarily translate to real-life performance (think FIFA and real-world football or NBA 2K and real-life basketball), there are plenty of transferable skills between playing our official F1 video game and racing in real life. A lot of that is facilitated by the first-person gameplay, the ultra-realistic graphics and the close-to-reality physics of the game. This gives our target demographic a real opportunity to experience and appreciate the sport in a new way, by providing a lens into the skills required to excel in the world of racing.

Secondly, the content is exhilarating. F1 Esports creates the perfect showcase for an alternative racing form, where the same skills, strategies and tactics around racing are tested at the highest levels. With the ability to easily play around with the length of the races, opting for shorter ones to suit our online demographic, and with the performance of the cars equalised giving way to more drama on the track, we are able to create thrilling content that any fan will be able to enjoy. That content is also elevated by the close-to-life gameplay, and it helps us with new audiences and fans that racing is fundamentally an easy sport to understand, whether virtual or real.

I think the third reason behind the success of eSports in motor sport is simply cheaper access, and access at a more elevated level.

F1 is unique in that it is very much an aspirational sport, but like anything aspirational there are pros and cons. One of the drawbacks is access, and unlike tennis where you can pick up a racquet and play at your local court, you can't just jump into an F1 car. But with eSports, you're able to do that just by getting hold of a video game. It provides a new way to get into the sport using the power of technology and even a training ground for the next generation of pro racers.

It remains to be seen how rapid and large the growth of eSports will be in motor sport and in the wider sports landscape. One thing is sure – it has great potential. At F1, we are taking a test and learn approach to optimising our presence and developing a series that leads the pack in an increasingly fragmented market to better serve both our new and existing fans.

Julian Tan

RUPERT SVENDSEN-COOK

CO-FOUNDER, VELOCE ESPORTS

ESports could lead to the biggest increase in the global driver talent pool in the history of motor sport. It is already the fastest-growing sport in the world, with around 200 million people actively participating and an audience of 380 million. There are a number of eSports genres – combat sports, football etc – but motor racing has the opportunity to become number one.

That is because it is the only eSport that is comparable to the real world. You compete with a steering wheel and pedals, and while the G-forces and sensations are different, the fundamentals are the same. So there is a huge opportunity.

You can't draw that parallel with any other eSport. A lot of kids play FIFA on their PlayStations but it's not like kicking a ball. But there is a tangible link between virtual and real racing. ESports exists across multiple platforms – F1 has its own series but before that we had Gran Turismo, Forza, DiRT Rally, Project Cars... And they're all across PlayStation, PC, Xbox... It's constantly developing and the games are becoming more accurate.

Rupert Svendsen-Cook

The quality of the drivers is incredibly high. Recently one of our drivers went head-to-head with Max Verstappen in an eSports race and beat him by about half a lap!

ESports is a very real new form of grassroots motor sport. I've seen that with our own drivers – we've put them up against real drivers and it's incredible how good they are. Not that it's important – over half our drivers have no ambition to drive a real racing car, and why should they? Let's get it out of our heads that eSports looks like the real thing on a screen– it's a thing in itself.

It certainly can become a credible alternative to more traditional motor sport series. There is a sidestep to be made between the two worlds, but the bottom line is that the real thing is too expensive to make it commercially viable right now. We are seeing online followings and engagement levels with our virtual squad that far exceed that of our real stable; we need to be creative on how we make that crossover work.

Another key point is that we're reaching an untapped talent pool, which has previously been priced out of the sport. It's heart-warming to take young drivers into paid roles in a sport that they otherwise would've missed out on due to funding.

That accessibility also rings true when it comes to eSports audiences. With drivers able to interact with fans before, after and even during live events as well as stream original content across social media channels, we're engaging a millennial audience that's crucial to the success of our sport.

Motor sport is renowned for being innovative and at the edge of technology. We're late to the eSports party as an industry, but if we focus on the growth I'm sure that it will keep snowballing.

Of course, the range of brands eSports appeals to opens up a new world of opportunity – we're in an era where sponsors and the type of partners we need to come into our sport are different. Within eSports sits the community and key demographic that our sport needs to engage to survive.

TEXT
/
GILES RICHARDS

Inspired to win

03

Enaam Ahmed had no family motor sport background to draw on and no resources to fund a racing career, but inspired by F1 star Lewis Hamilton, the British-Asian driver has blazed a trail through the ranks and is currently making his mark in the FIA Formula 3 European Championship

There is such enthusiasm and passion in Enaam Ahmed's love of racing that it is all but impossible not to be swept along by his sheer exuberance. His conversation is peppered with ebullient laughter that sits easily alongside a fierce determination, yet there is also no trace of cynicism, which, it must be said, is hugely refreshing in a world that can all too often darken the brightest hopes.

Here, then, is a driver who revels in having found his calling, but as he challenges for the FIA Formula 3 European Championship, with F1 as the ultimate goal, intriguingly it is an ambition Ahmed had not even imagined as little as four years ago.

The 18-year-old, currently eighth in the F3 European Championship, is making an impression in his rookie season few had expected, despite clear indications of his talent. When he was 14 Ahmed won five karting championships, including the World and European titles, a year younger than the age at which Lewis Hamilton achieved the same feat. In 2016 Ahmed moved to British F3 and a year later took the title by 164 points. With 13 wins, it was one more than Ayrton Senna managed in 1983. Now with two victories so far this season he has targeted taking the European championship as his next step.

Yet there is no sense that this is a young man stoically working his way up the ladder with an eye on the fame and fortune of F1; instead there's a real impression of someone who cannot quite believe that this is now his life.

"This is the best job in the world," he says. "I don't feel like I'm working. All I do is have fun. I race other people – the best teams in the world – drive a car flat out on the limit of grip at all times. I don't think there is anything better you can do."

Just 10 years ago, neither Ahmed, nor his family, had any inkling that this is where he would end up. He grew up in west London of British Asian descent to mother Samina, an Indian Kenyan, and father Shami, who is Pakistani. None of the family had any interest in, or knowledge of, motor racing and but for the impact of one driver that is how it might have remained.

"Lewis [Hamilton] doing what he did was my influence, otherwise I probably would never have tried it," he explains. "Seeing him win the world championship in 2008 made me want to try. I had no interest in racing before Lewis. His ethnicity was a factor in it, because I am from an Asian background. It caught my eye and my parents' eyes, and it made me want to have a crack at it."

DREAM BECOMES REALITY

He was supported by his parents, especially encouraged by his mother who was eager that he should pursue something he enjoyed but who, to this day, cannot watch him race such is her fear that he could get hurt.

When he was eight, his first karting experience at Rye House circuit in Hertfordshire, where Hamilton had also raced, was a revelation. "I just really enjoyed it," he says. "I jumped in, started sliding the karts around, it was one of the only things in life that got me excited."

Unlike may of his contemporaries however, with no experience in the family of the sport, there was no expectation that it would be anything more than an entertaining distraction. He continued karting for fun until 2014, when the championships fell and a new vista was revealed.

"When I won the European Karting Championship I realised I was racing the best in the world. I beat them and thought: 'Wow, I would like to make a career out of this'."

There is a faintly detectable undertone of disbelief in his voice as he describes the moment. As if, even now, he is unsure quite how it happened and how far he has come in the four years since deciding to go flat out in racing.

Having made the decision, he threw himself into it, academic constraints not withstanding. "I didn't really like sport, this was the only thing I really liked doing," he says. "When I was at school all I could think about was racing. I used to pick up a book and pretend it was a steering wheel – other kids used to think I was a bit weird."

Ahmed made the step to cars in 2015 and is honest enough to admit that at first it proved a struggle, but it was one he overcame. His winning season in British F3 was extraordinary, a country mile beyond his team-mate and his 13 wins from 24 races has only been bettered once before, by Jan Magnussen in 1994. Indeed, at the season's final race in Donington he lunged up the inside of team-mate Cameron Das at the Melbourne hairpin, so determined was he not miss that 13th win. The overall achievement was recognised with the accolade of British Club Driver of the Year at the 2017 Autosport Awards.

"It was very emotional and it made me realise how far I had come and how hard I had worked," he says of the close of that season. "To get near Senna was a big deal, I never thought I would surpass him."

'Lewis doing what he did was my influence, otherwise I probably would never have tried it. Seeing him win the title made me want to try'

Moving on proved a trickier affair. Competing in European F3 requires a major financial commitment and without backing he was left with nowhere to go and a burgeoning career might have ground to a halt. The family rallied round. They sat down and an extraordinary conversation ensued. "My parents understood the situation," he explains. "We looked at each other and they said: 'We will sell the house'."

They duly put it on the market to raise the funding required which, had the family home been used to further his career, would have placed a unique form of pressure on the teenager to succeed.

Ultimately their sacrifice proved unnecessary. The house was on the market until December of last year when Ahmed finally managed to secure the backing and a drive with Hitech Bullfrog GP for this season. But his appreciation of his parents' generosity is undiminished. "A lot of drivers say they love their parents but I really love mine because they were willing to put everything on the line for me to get to the top," he says.

The competition is tough, not least in the form of Red Bull junior Dan Ticktum and Ferrari Academy drivers Marcus Armstrong and Guanyu Zhou. His hope was to gain experience in the series but following two hugely impressive wins at the Hungaroring and despite some trying races at the next two rounds at the Norisring and Zandvoort, Ahmed firmly believes he is a contender for the title.

Lofty ambitions but carefully harnessed by a grounded young man. Ahmed is a driver who voluntarily returns to the garage on the Monday after a race to help the team dismantle the car and is insistent on getting his hands dirty in order to learn as much about his craft as is possible. Equally, when he is out of the bubble, retaining a sense of perspective is also crucial after races. "I switch off from it all and go and seem my mates," he says. "Go and be an 18-year-old again. It's important. It's easy for a driver to take himself too seriously, so I always believe in having fun."

Which it seems abundantly clear he is managing to achieve on and off track. He wants to make it to F1 to conclude the journey inspired by Hamilton a decade ago but for the moment is sensibly focused on one championship at a time. Winning European F3 is the immediate goal and win or lose it is one being pursued with abandon.

"I like pushing myself past what I believe is possible," he says. "As a driver you are always a rough diamond and it is all about polishing to get the most from the car and yourself. You can never relax, because if you do someone goes quicker than you. You are always fully lit and you cannot afford to back down in any way. It is relentless and that's what I like. It's bloody awesome."

With two wins under his belt, Enaam Ahmed is chasing F3 European Championship glory in his rookie season as part of the Hitech Bullfrog GP line-up.

04

'The Halo saved my life'

Introduced to top-level single-seaters this year, the FIA's Halo frontal protection system has often divided opinion, but not for F2 driver *Tadasuke Makino* who believes the device saved him from serious injury, or worse. And now new research into his Barcelona crash is proving him right

TEXT / MARC CUTLER

Japanese racer Tadasuke Makino avoided serious injury in an F2 race thanks to the Halo device.

Imagine the thrill of racing around a corner on a Formula 1 track at 125 km/h with a competitor's car inches away from you on the inside. Now imagine the fear of taking that same corner at 125 km/h with a competitor's car inches above your head.

That was the situation faced by Japanese driver Tadasuke Makino as he competed in a Formula 2 race at the Barcelona circuit in May this year. Fortunately, the other car remained inches away from his head thanks to the Halo, the additional frontal protection system brought into F1 and F2 this season.

Had the same accident happened last season, Makino faced the very real possibility of the F2 car landing on his head at high speed. This year it landed on the Halo.

Makino has no doubts that it saved his life. "I don't know what happened, but without the Halo I think the tyre would have hit my helmet," he told Autosport.com after the race. "It was a big surprise, the Halo was a big help for me."

Now new research has revealed how close he came to suffering a serious injury.

ACCIDENT ANALYSIS

Soon after the accident, the FIA tasked its safety research partner the Global Institute with conducting a detailed investigation to find out what role the Halo played. ▸

The 21-year-old is competing in this year's F2 Championship with the Russian Time team.

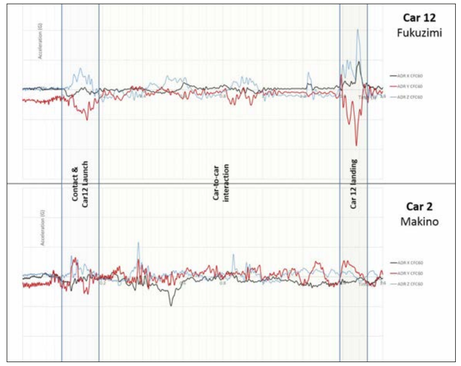
To do this, Global Institute consultant Andy Mellor and the FIA safety department brought together all of the available information from the Accident Data Recorders (ADRs) of both cars as well as extensive video footage (both broadcast and non-broadcast).

That in itself was no easy task. "We needed to look at the kinematics of the two cars and the timings of both," says Mellor. "And synchronise the events from the ADR with the events observed on video. As the ADRs on two cars are not precisely synchronised in this championship, we needed to determine a number of reference points. That allowed us to run the two ADRs in the same timeframe and then determine during which phase of the accident the interaction with the Halo occurred."

The ADR information is all-important. "It records the speeds and the G-loads on the car. You can multiply the acceleration with the mass of the car to understand the forces involved, and we did that on the two axes to get an estimate of the lateral force and a vertical force on the Halo," adds Mellor.

The ADR also measures other data like wheel speed, temperature, steering input, brake input and so on, which helps to synchronise the data.

It all means that researchers can provide an incredibly accurate analysis of the accident.



ADR information from Makino and Fukuzumi's cars was used to build an accurate picture of the crash – and what part the Halo played.

Encouragingly, the Halo on Makino's car easily withstood the lateral forces involved with being hit by another car's tyre.

'It appears that during this accident the Halo helped to avoid direct contact with the driver's helmet'

RACING INCIDENTS

The incident itself occurred during Race 2 of round three of the 2018 FIA Formula 2 Championship, involving the cars of Makino and Nirei Fukuzumi on May 13, 2018 at Circuit de Barcelona-Catalunya.

Fukuzumi was attempting to overtake Makino at the right-hand turn four. The ADR data showed that at the braking point for this turn, Fukuzumi was travelling at 258km and Makino at 253km. At the entry to the corner, the cars were side by side, but as Fukuzumi drew level he started to oversteer and his rear-left tyre touched the rear-right tyre of his opponent. The cornering speeds of the cars at this time were around 125km/h.

The contact caused the rear left corner of Fukuzumi's car to launch and also yaw clockwise. During the subsequent car-to-car interaction, his car turned through approximately 90 degrees with the rear-left tyre making contact with the right-side bodywork of Makino's car and then, importantly, the right-side upper surface of the Halo hoop.

Both cars exited the left side of the track, while still in contact, and they separated as they crossed the grass verge between the edge of the track and the gravel run-off area. They continued to travel across the gravel run-off area and impacted the five-row-deep tyre barrier.

Fukuzumi ultimately impacted the tyre barrier travelling backwards at approximately 68km/h.

Makino also impacted the tyre barrier travelling forwards at a lower speed of approximately 34km/h. Neither driver was hurt.

HALO EFFECT

During the car-to-car interaction, Makino's Halo almost certainly prevented the rear-left tyre from making contact with his helmet.

Analysis shows that the maximum lateral and vertical accelerations of Fukuzumi's car during the tyre-to-Halo contact were 2.8G and 3.8G respectively. Considering a total car mass of 750kg, this corresponds to a peak lateral force of 20.4kN and a peak vertical force of 28.0kN, giving a resultant of 34kN. The Halo is designed to withstand forces of more than 125kN so this accident was considerably within its capability.

Global Institute and FIA safety experts also viewed video footage from the Barcelona accident as part of their investigation.

However, if the tyre had contacted Makino's helmet with a similar force, there would have been potential for serious or possible fatal injury.

The Global Institute report concluded that, 'The Halo likely prevented contact between the tyre and the driver's head. Without the Halo there would have been potential for a very serious head or neck injury.'

Mellor, who worked on the Halo project, is understandably satisfied to find that the system is already proving valuable, albeit in unfortunate circumstances.

"We know that single-seater, open-wheel cars are sensitive to launching," he says. "As soon as you get tyre-to-tyre contact, the interaction often forces one of the cars upwards; and a car climbing across the cockpit of another car has the potential for serious driver injuries. It appears that during this accident the Halo helped to avoid direct contact with the driver's helmet."

The FIA has specified a minimum performance requirement for the Halo and Halo attachments of 125kN, so the accident was way within the capability of the Halo. "In comparison, the mechanical tolerance of a driver's neck and base of the skull is considered to be 3 to 4kN; if you were to exert 30 or 40kN on a driver's helmet there would, likely, be a really devastating outcome," adds Mellor.

What has been particularly satisfying for Mellor is that while the Halo project was instigated to provide additional protection from flying objects, such as stray tyres, it has also proved protective in other circumstances, in this case car launching.

He says: "The Halo was originally conceived as additional frontal protection and the design brief was to manage the energy of an impacting wheel assembly. However, when we conducted the detailed risk assessment, we determined that the Halo could offer significant protection during a much wider scope of accident types, and the F2 accident at Barcelona was anticipated during the risk assessment study."

Going forward, researchers will analyse all future accidents involving the Halo to support the development of the next generation of additional frontal protection systems.

"It's important to get on-track experience to fully understand how to further improve the safety systems in place," says Mellor. "In terms of the Halo's strength the numbers speak for themselves. With regards to the geometry there was a careful balance between having the Halo close enough to the driver to provide protection but not so close that you risk a helmet hitting it in other accident types."

It was reassuring, for instance, that during the accident of Toro Rosso driver Brendon Hartley at this year's Canadian GP, analysis showed that the helmet was in no risk of contacting the Halo.

"Both that case and the Makino accident have been very reassuring that the geometry and positioning of the Halo is extremely optimised; that it is encapsulating to be very protective but outside the range of free motion of the driver's helmet. Of course we will continue to assess further incidents as they occur, but so far the analysis has been positive."

It is too early to say whether the design of the Halo will change in the near future but what seems certain is that this type of additional frontal protection is here to stay.

As Mellor says: "It's not obvious how you would improve the Halo in terms of safety. There may be discussions on how to improve the aesthetics, but in terms of safety the FIA and the teams have achieved a significant milestone in open-cockpit racing."

In fact, the FIA is committed to supporting the delivery of the Halo in more open-wheel series in future, not just those it governs. The Super Formula series in Japan recently tested a Halo with a view to bringing it in for the 2019 season.

Mellor concludes: "All drivers are exposed to some risks in open-cockpit race cars. The statistics show that as safety has improved, traumatic head impacts have become extremely infrequent, but when it happens it can be devastating. The Halo adds to the overall safety package to further reduce the potential for serious and fatal head injuries." ◂




Halo effect in Leclerc incident to be analysed by FIA

Above: Fernando Alonso's McLaren lands on top of Charles Leclerc's Sauber at Spa, and (below) Leclerc with FIA President Jean Todt at the following race, in Monza.

The Halo device was called into action again more recently at the Belgian Grand Prix in August. A few seconds after the start of the race, Nico Hulkenberg slammed into Fernando Alonso's McLaren at the La Source hairpin. The collision launched Alonso into the air with his car landing on top of Charles Leclerc's Sauber.

Fortunately, Alonso's car did not touch Leclerc's helmet and it seems as if the Halo helped to deflect it away from the driver. What is certain is that Alonso's front-right wheel struck Leclerc's Halo as it passed over the car, breaking the McLaren's suspension.

Leclerc confirmed the worth of the device saying, "Definitely the Halo probably helped today," while Alonso added: "The positive side is we are all OK, especially Charles. I flew over his car and the Halo was a good thing to have today." Former F1 champion Nico Rosberg tweeted: "We can end the Halo discussion now. It will save lives! #thanksFIA."

As with the Makino incident, the FIA will now investigate it fully and study how significant the Halo was in protecting Leclerc during the crash. FIA race director Charlie Whiting said: "It doesn't take a lot of imagination to think that in a similar incident without the Halo the car probably would have made contact with Leclerc's head."

05

As President of the FIA's Environment and Sustainability Commission, former Mexican President *Felipe Calderón* has a range of issues to contend with. Drawing on past experience, however, he believes a sustainable future for both mobility and motor sport is not simply a goal, but an achievable goal

Sustaining a passion for movement

TEXT / BRIAN PAULSEN

Environmental matters were at the forefront of Felipe Calderón's concerns when he served as President of Mexico from 2006-2012.

You took up the Presidency of the Environment and Sustainability Commission last December. Why is the area of sustainability of particular interest to you?

As a child, my father had an incredible advocacy for the environment, the planet, for creation, but being President I realised how important it is for human life. Mexico is one of the most important countries in terms of bio-diversity, but it is also one of the countries that will be most affected by the consequences of climate change and I can see the poorest suffering the most. So I became quite involved in all these issues. I realised how vital it is for humanity, one of the most important global challenges we are facing today, so for a lot of reasons I am committed to environmental issues.

Most large international sporting federations have a commission dedicated to dealing with sustainability. Now that such a mechanism is in place at the FIA, how can the federation capitalise on the expertise of this new commission to encourage FIA members to address sustainability in a more structured manner?

The contribution of the FIA to sustainability has already had a positive impact. Programmes such as 'From Track to Road' for instance – in which the experience gained through technical research in the motor racing world has been transferred to road car development programmes – have been quite important to improve car and energy efficiency, and also new technologies that allow transport and mobility as a whole to be better, to provide better conditions for people.

Following on from this, the commission wants to help FIA members by bringing together all that experience, all that vision, in order to provide useful resources for them and to drive forward projects that contribute to the future of sustainable transport, through research, consultation and the FIA's ability to lobby for change at policy-making level. Also it is to provide the FIA with the recognition it deserves among new generations for whom environmental issues are so important.

Calderón is keen to work with FIA member clubs in his role as Environment and Sustainability Commission president. Right: heavy traffic around Mexico City's Palacio de Bellas Artes.

'I love Mexico City but unfortunately it is a clear example of what we must avoid in terms of urban development'

You have mentioned that in your former role as President of Mexico you recognised the likelihood that your country would be affected by environmental concerns. In that role, did you see how rapid urban development – particularly in places such as Mexico City – compromised environmental concerns?

I love Mexico City but unfortunately it is a clear example of what we must avoid in terms of urban development. It is a sprawling city with more than 22 million inhabitants and its citizens suffer a lot. Many people need to travel three or four hours a day just to get to their place of work and that has a significant impact on family life, not to mention the problems associated with air pollution and health issues, such as respiratory disease.

So my experience is that we need to design public policies in order to deter sprawling models of urban development. Cities must be compact, in the sense that we need to provide incentives for density, urban growth must be vertical rather than horizontal, cities must be connected and by extension integrated. People should be able to get to one place from another in a simplified way, through integrated transportation systems – in comfort and safely.

Coming back to the Mexican example: in Mexico City there are a number of local authorities across the metropolitan area that for decades were not co-ordinated, at state level or at federal level. So the lesson I learned from Mexico City and from other Latin American megalopolises was simple: cities must be compact, connected and co-ordinated.

In that regard can urban expansion and infrastructure growth be complimentary to sustainability targets?

There must be a set of combined public policies but among them, yes, large-scale transportation systems which improve the quality of life of citizens, that reduce air pollution and increase productivity can exist.

One size doesn't fit all, but the point is that, depending on the size of the city and its existing infrastructure, the size of the streets and so on, different systems are applicable.

For instance, the rapid bus transit system has demonstrated in several cities that it is among the most cost-effective modes of transportation. However, in a city such as Mexico City, where huge numbers of people need to be mobile, it might not be sufficient. However, there are many different experiences that could provide good case studies for governors and policy makers in order to improve quality of life.

How you see FIA member organisations playing a role in lobbying those government organisations to make these changes happen?

FIA member clubs have incredible experience and knowledge. In particular, for newly-installed authorities in a city, for new mayors or recently-elected officials, that depth of knowledge is hugely valuable. They need the advice and experience of FIA members. Also, I feel that in the development of common regulations the experience of FIA clubs is really valuable. The ability to leverage that kind of cross-border knowledge is exceptional. ‣

Calderón believes the FIA's Smart Cities programme, run in conjunction with Formula E races (above), is providing a useful insight into future urban planning.

Motoring clubs mainly represent the needs of their individual members, so how can FIA member clubs represent consumer interest while similarly bringing about regulatory change that may impact on their members' freedom to drive?

> It's complicated and a real challenge for the commission, but we need to put ourselves in the shoes of members and their customers to help bring about changes that improve the commonwealth and improve global conditions, but which also reflect the concerns and interests of members and their customers. It is difficult, but it is possible.
> Of course, we would all like to drive our own car anytime, anywhere, but I think we have to accept that is not possible anymore because streets are a scarce resource, so we need to learn the best way to avoid traffic congestion, to improve the quality of traffic to benefit all.
> I believe that technology together with public policy and experience can provide a lot in order to take the best decision in favour of the customers.

One of the initiatives the FIA has implemented around this topic is its Smart Cities programme. How do you see this being developed in the future?

> Smart Cities is an excellent programme. The key aspect is the FIA is providing a window into alternatives, provoking a kind of demonstrative effect, either for authorities or public opinion, in order to learn how to do things in a better way.
> The best way for city governors and planners to learn what is happening around the globe is to see examples, and the FIA is presenting them with an incredible opportunity to understand what is happening in the world, what cities are trying to do and what is the best experience to apply.

'Formula E is a powerful demonstration of the potential of electric vehicles. The cars are fast, beautiful and they are clean'

What do you see as the major trends occurring at the moment and how important is it for us to focus on developing new technologies to solve the problems we currently have?

> There is obviously a trend towards electrification and there are different scenarios around the point at which electric vehicles become the dominant vehicle type in the world – it could be two, three or four decades but it seems it will happen. One trend I see is automation of production, which could have a major impact on jobs and the manufacturing sector, including in the automotive industry.
> Also there is the obvious growth in autonomous mobility and I sincerely hope this could improve the quality of human life. Autonomous mobility could help a lot in the reduction of traffic congestion, reducing waste and refining people's mobility, making it more efficient.
> The most important thing with trends such as this is that we need to leave enough room for true innovation. Innovation cannot be conducted or directed. It is an expression of freedom and creativity, especially in young people. The Smart Cities start-up programme provides for that, I think.

The Smart Cities programme is run in conjunction with FIA Formula E races and demonstrates the crossover between cutting-edge motor sport and technological innovations in transport. Motor sport is also facing issues of environmental concern. How can the FIA's sporting clubs and sporting organisations safeguard against increased regulation around those environmental concerns?

> I think regulatory change is inevitable. For example, three million premature deaths a year are occurring as a result of air pollution – an incredible figure – and we have no idea what will be the consequences in respiratory diseases.
> The reality is that there will be a regulatory change and the regulation is happening already.
> The way for us to deal with that is to promote to our clubs and members an understanding of what is happening, and also provide them with strategies to face those issues.
> It is important that FIA members get some expertise to be able to deal with potential regulation change and to allow ▸

them to engage in an informed dialogue with the authorities in order to avoid common mistakes in over-regulation. And that's important, because we need to lead change. It is better to understand change and then lead it, to see the trends of the future and where the potential risks are for FIA members, and then work together with the authorities to implement the best regulations possible.

The FIA has an Environmental Accreditation scheme for sporting organisations. Is there any reason a similar scheme should not be rolled out to mobility organisations?

The accreditation programme provides several benefits, one of which is the environmental benefit itself – reducing emissions at one event, across a championship and by reducing waste.
It also creates an incredible reputational benefit for the event and the FIA. This is hugely important as around the world people are more conscious than ever about environmental issues and we need to avoid negative perceptions of motor sport, which do exist in some countries.
And yes, I believe it is possible to translate that positive effect in other areas of the FIA. However, I would say that we need to be conscious that every single club has different circumstances, problems, regulations and customers, so we have to be careful about how we proceed. We need to customise accreditation processes to other areas but now it is important to improve the accreditation programme. To put in place the three-star categories we have, and then I believe that we can move gradually and carefully to other areas, always considering the opinion and suggestions of FIA members.

Formula E's Gen 2 racer has caught the attention of Mexico's former president, who is a fan of the all-electric series.

Meeting FIA President Jean Todt – Calderón shares his view that innovation has a strong link from track to road.

'It is better to see the trends of the future and then work with the authorities to implement the best regulations possible'

FIA President Jean Todt has often described motor sport as a laboratory for technical innovation. Do you still think that motor sport can play a defining role in developing urban mobility?

Definitely. I feel that a significant amount of the innovation happening in the car industry has origins in motor sport. Formula E is a powerful demonstration of the potential of electric vehicles – it is a reality, it is happening and the cars are fast, they are beautiful and they are clean. Programmes like Track to Road show that motor sport can provide technology and innovation from the racing arena to the cars people drive every day.

Finally, is the future of motor sport electric or will the petrol engine continue to attract fans in the future?

I hope that both will be the future, I'm one of those that misses the noise of F1 cars but at the same time I love the performance of Formula E's electric cars.
Clearly there is an incredible evolution in motor sport – you can see the efficiency of the cars on the race track, fuel efficiency, the speed, the aerodynamics and so on, and electric vehicles will be part of the future of automotive everywhere.
But it's a sophisticated market, so I think there will be room for both. Also we have to think about autonomous vehicles. We don't know the future – is there any space for them in races?
Personally, I believe the human factor is inescapable. It is impossible to have a race, a real race without a person inside making decisions, but opinion may change. Maybe beyond my generation we will see other means of transportation.
However, at the moment I feel that traditional forms of motor sport will continue for a long time, but it will be alongside new technologies such as electric racing. The series is improving all the time, in terms of the capacity of the batteries, the way the driver will not need to change cars mid-race... We are living in a time of such innovation in the world of motor sport. It is truly fascinating. ◂

In a bid to create a lasting legacy of positive change, the FIA is using proceeds from the sale of equity in Formula 1 to form the basis of a new Innovation Fund aimed at rewarding forward-thinking initiatives in motor sport and mobility

06

Building a legacy of innovation

A Track to Road project to improve helmet safety and design across the board will get a €1.5m boost.

When the commercial rights of the FIA Formula 1 World Championship were ultimately sold to Liberty Media in January 2017, motor sport's governing body was the beneficiary of a somewhat unexpected windfall.

With a one per cent stake in previous owners Delta Topco, the FIA is likely to receive around €50 million thanks to this sale; a sum FIA President Jean Todt said presented the Federation with a remarkable opportunity.

"Innovation is essential if the FIA is to continue to improve and take its rightful place in the world as the leader in mobility and motor sport development," said Todt at the meetings of the FIA World Motor Sport Council and its World Council for Automobile, Mobility and Tourism in spring last year.

He then tasked the Federation's Vice-Presidents of Sport and Mobility and FIA senior personnel with the development of proposals for the distribution of the funds.

The result is the funds generated by the Delta Topco sale are now being channelled in a fascinating new direction – an innovation fund designed to reward creativity and build a lasting legacy of exciting and potentially game-changing projects within the FIA community and beyond.

Following ratification of the fund's creation at the 2017 FIA General Assembly, the mechanisms and the eligibility criteria by which projects will be assessed and funded were put in place.

"First of all, the overall aim of the fund is to support new and worthwhile ideas that will generate lasting benefit for the FIA community," explains the FIA Chief Administrative Officer Jean-Baptiste Pinton, who oversaw the methodologies to be used by the fund.

"The fund is designed to focus on innovation and to leave a legacy, to pair exceptional resources with an exceptional use."

"Furthermore, the fund enhances the solidarity between the two pillars of the FIA," he adds. "We acknowledge that the money comes from the sport side of the FIA, from the sale of the Formula 1 equity, but it will also partly benefit the mobility side. If you have cross-pillar projects, they can take from the fund as a whole.

"Where projects are unique, to either Sport or Mobility pillars, the allocation of funds would be for two-thirds in favour of Sport."

BENEFITS FOR ALL

The fund's exceptional nature differentiates it from existing grant processes within the FIA, with Pinton elaborating by adding that "the project must not be for the benefit of one club or one stakeholder in particular, as that is what the grant process covers. It has to benefit the FIA community as a whole."

The fund, which targets innovative, high-impact projects that are not currently funded and which are capable of delivering tangible outcomes aligned with the FIA's future direction, is open to all stakeholders; a group the FIA CAO says encompasses a wide range of organisation, businesses and individuals.

The Girls On Track kart challenge is part of the fund-backed FIA European Young Women Programme.

"The FIA is different from many international federations – you have not only clubs, the members, but also manufacturers, drivers, volunteers, promoters, represented in a large array of commissions," he says. "We would like to encourage applications from every area of the Federation, but to have a relatively lean organisation for assessing the projects, the stakeholder's project has to be channelled through a member club."

Once submitted through the fund's initial application template and associated tools, projects are then reviewed by a steering committee, comprised of 17 members. Again, for Pinton simplicity was the target in formulating the committee. It is comprised of the FIA's two Deputy Presidents, seven FIA Vice-Presidents from the Sport pillar of the Federation, six FIA Vice-Presidents for Automobile Mobility and Tourism and four permanent guests (with no voting power), the FIA General Secretaries for Sport and Mobility, Pinton himself and the FIA's Compliance Officer.

"That committee is broken down into two working groups, one for Sport and the other for Mobility," Pinton continues. "Positively assessed projects then go forward to the whole steering committee, which gives an overall assessment. Transversal projects are assessed by the steering committee as a whole.

"There is a facility for experts to be brought in on request," he adds. "If the subject is complex or technical enough, the committee or the working groups may ask for external assessment to ensure it has a truly global picture of the project. The principal of the fund is to be as flexible as possible, to promote innovation and deliver a legacy, but of course there have to be checks and balances in the system."

Though the fund is only a few months old, three projects have been given the green light for funding.

"The three projects funded to date have been processed within the FIA administration, says Pinton. "Firstly, around €290,000 to the FIA's European Young Women Programme. This project is aimed at encouraging female involvement in motor sport, reaching a new audience of more than 3,000 non-licensed 13-18-year-olds and identifying talented young drivers. The money from the Innovation Fund is being provided to co-finance a project that has already been assessed and funded by the European Union.

FIA CAO Jean-Baptiste Pinton has played a key role in the new €50m Innovation Fund.

"The fund is designed to focus on innovation and to leave a legacy, to pair exceptional resources with an exceptional use"

"The second initiative chosen is a cross-pillar project aimed at developing motor sport, in particular e-karting, and road safety awareness in an Olympic environment, through the Youth Olympic Games.

"The FIA has been recognised by the IOC, but motor sport is not currently included among Olympic sports. So to begin with, the project proposes to start with the Youth Olympics to demonstrate to the Olympic movement that motor sport has relevance for road safety, and for technology.

"The third project, which is likewise cross-pillar, stems from the Track to Road concept and centres on the idea that expertise in motor sport, in this case the FIA's deep knowledge of helmet safety and design, can be transferred to the road to enhance safety and also to benefit other sports where helmets are used."

The helmets project, still under development, could also have an additional value – as Pinton points out – with the development of a ratings system that could be applied to helmets, in a similar manner to the NCAP test ratings applied to new cars.

"So far €1.5m has been allocated for the helmet programme and the same amount for the Youth Olympic Games, and in the region of €300,000 for the FIA European Young Women Programme.

OPEN-MINDED APPROACH

"With regard to future projects, I think we are in a maturing process at the moment," says Pinton. "A number of projects have already been submitted and the idea is to await the arrival of more projects that are mature enough for consideration."

A number of criteria have been put in place to govern the assessment process under the banner of SMART – Specific, Measurable, Achievable, Realistic, Time-bound. Pinton again says that the metrics were kept as simple as possible.

"The idea is to be as open-minded as we can in the kind of submissions we receive. We want to encourage innovative thinking. The SMART criteria are simply a framework by which to judge that innovation," he insists. "They are a way to try to determine the material effect of a project, to assess its real impact.

"If we receive what we think is a good idea but where the applicant may not have the competency or the personnel available to develop their submission fully, if we can help, why not? Our duty, as part of the administration as a whole is to try to help."

He adds that, while there is no annual allocation from within the total fund, or a ceiling on funding for any one project, larger projects will be subject to deeper analysis.

"The assessment process will be thorough for all projects, but obviously the larger the amount applied for, the greater the rigour of the assessments that will be undertaken," he says. "However, we do not want to limit innovation. Everything depends on the quality of the project and the likelihood of achieving its goals. There is no annual funding allocation either but the idea of the fund is not to spend as quickly as possible but as intelligently as possible."

Ultimately, the fund is aimed a creating a legacy, providing a spark to projects that could potentially change how motor sport is conducted, how transport functions and even save lives on the world's roads.

"The fund is there to promote innovation and to leave a legacy. We are lucky enough to have a significant resource to invest in projects that may bring long-lasting value. The FIA has benefited from its involvement in Formula 1 and it is the Federation's duty to pass on that benefit to our community, to their members and to society as a whole."

While Formula 1 is set for major revisions in 2021, the FIA and the sport's commercial rights holder are laying the foundations for change with a new set of 2019 regulations designed to tackle one the most pressing issues – how to promote closer racing and more overtaking...

THE EVOLVING FORMULA 06

TEXT
/
MATT YOUSON

What makes for a good Formula 1 grand prix? Ask 10 people working in motor sport and you'll get 10 different answers – but the one thing everyone agrees on is the need for close racing. In some quarters, this is misinterpreted as shorthand for 'ceaseless overtaking', but close racing offers more subtlety than that: the potential for overtaking, certainly, but also a fair battle between attack and defence.

At certain circuits, the current generation of F1 cars have found close racing to be an elusive quantity. Last year's aerodynamic reset created faster cars with greater downforce, capable of smashing lap records all around the world. But the regulations also had the unintended consequence of making it very difficult for one car to follow another. Changes to the F1 technical regulations are going to address this next year.

It's no secret that the FIA and Formula 1 have been looking at a far-ranging technical reboot for the sport in 2021, but an opportunity arose to deliver an early taster next season. The changes for 2019 are a small subset of the bigger project. A research collaboration between the FIA and F1 produced a standalone revision that could be introduced in isolation without undue disruption. Eight of the 10 F1 teams undertook simulations earlier this year and their results unambiguously suggested the proposals would make racing closer. Accordingly, the changes were fast-tracked into the F1 technical regulations for 2019.

The problem at the heart of the matter is downforce, or lack thereof. Modern F1 cars generate vast amounts of downforce but occupy a very narrow operating window. Downforce dominates car performance, but for a car to gain the full measure from its aerodynamic package it needs to travel through undisturbed ('clean') air. This is the very opposite of the environment it occupies when it follows another car: the leader creates a turbulent ('dirty') wake, and the deeper a following car gets into that wake, the more its own aerodynamic performance suffers. The predators struggle to get close to their prey. ▸

Williams was among the teams that tested new aero parts for 2019, including a simplified front wing, at the Hungaroring in July.

A certain amount of turbulence is inevitable and, indeed, is not unwelcome as it cancels out the advantages of slipstreaming, making for a good, even contest. But the aerodynamic direction taken by the current generation of cars produces a very turbulent wake as an unfortunate by-product of a faster, more efficient car. Aerodynamicists use a measure called Total Pressure Coefficient (TPC) when talking about the energy contained within an airflow. Where the leading car has a TPC equal to one, a car following closely may have a TPC as low as 0.4 or 0.5. Empirically, this means that car loses 40-50 per cent of its downforce. The new rules seek to reduce this turbulence and restore balance to the contest between attack and defence.

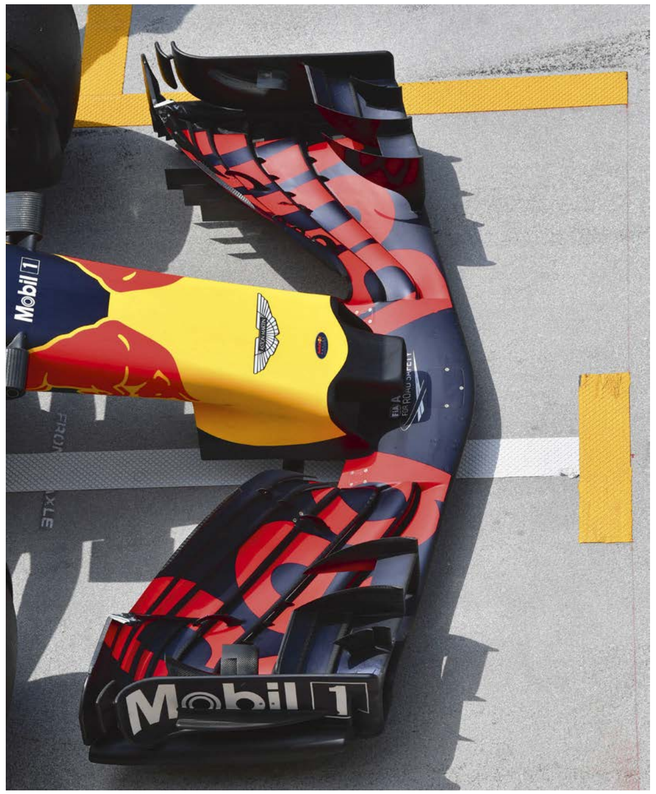
Formula 1 Chief Technical Officer Pat Symonds, one of the experts at the heart of the project, explains the problem succinctly: "The front wheels of an F1 car produce a very dirty wake and teams naturally want to push it to the side to get nice, clean air flowing over the rest of the car. They do this by producing specific vortices with the front wings and brake ducts. If you look at the current front wings, there are a lot of appendages and elements sitting on top of the wing. Each one is designed to produce a vortex, to control that wake. Unfortunately, when you start pushing the front wheel wake out a long way, you create a very wide area of low-energy air behind the car, which reduces the downforce on the following car."

The effect cannot be eliminated but it can be mitigated. The intention with the new regulations is to reduce the 'outwash' wake from the front wheels by changing the shape and nature of the front wing, and simplifying the front brake ducts. This will make the airflow follow a more natural path over and around the car. The differences in bodywork will be noticeable, but perhaps only to the sharp-eyed.

"It's quite a heavy rule change that's being introduced for the front wing," says noted aerodynamicist Nikolas Tombazis, the FIA's head of single-seater technical matters. "It will be reduced to five elements only, and we've put in place rules that will only allow these elements to change shape gradually and smoothly across the span without the discontinuities, extra profiles and fins on the top surface that create the strategic vortices that push the wheel wake outboard today. The end plates become much simpler and underneath the wing teams will be limited to a maximum of two fences."

'If you look at the current front wings, there are a lot of appendages and elements, each one designed to produce a vortex'

PAT SYMONDS



Currently F1 front wings sport a large number of elements and turning vanes designed to condition airflow towards the back of the car.

F1 Chief Technical Officer Pat Symonds has helped to develop the new regulations for 2019.

Behind the front wing, the new regulations will also simplify the front brake ducts. Over the last few years brake ducts have become fantastical flights of fancy, convoluted into sculpted crenellations, the purpose of which has little to do with cooling the brakes and a great deal to do with generating more vortices and channelling air out and away through hollow wheel hubs. The new rules will simplify the ducts, stripping them of the vortex-shedding winglets in use today.

THE MUSHROOM EFFECT

Keeping the wake closer to the centreline of the car isn't simply an exercise in narrowing the field of turbulence: the significance is, by keeping the turbulent air close inboard, it stays in the zone where it will be collected by the rear wing and thrust upward and, it is to be hoped, over the following car in a phenomenon aerodynamicists refer to as 'mushrooming'.

"The rear wing helps us when we're trying to promote closer racing," explains Tombazis. "It has two strong trailing vortices, which pull the flow up from close to the ground into the 'mushroom'. This mushroom is pushed upwards quite violently and quickly, allowing clean air to be pulled in from the sides to take the place of the turbulent air being flung upwards. This clean air tends to be higher energy, which has a beneficial effect on the aerodynamics of the following car.

"We want to increase that mushroom effect and make it stronger, but also put more of the dirty air into its vicinity to push it up and out of the way."

While the changes to the front of the car would have a significant effect in isolation, the new rules, as Tombazis suggests, give a further boost by making the rear wing more powerful. It will become 50mm wider, 20mm deeper and hopefully will help create a stronger upwash.

How big an improvement will this make? There is a clamour for numbers but forecasting the real-world performance for cars half a year and more away from launch is an exercise that is more art than science. The teams that chose to simulate the new geometry all agree it delivers results that should be a boon for closer racing, though by how much is a question that won't properly be answered until next season gets underway – although some teams started testing their 2019 wings at the in-season test conducted after July's Hungarian Grand Prix.

The sculpted front wings and brake ducts produce a turbulent wake that makes it hard for following cars to engage in close racing.

Williams chief tech officer Paddy Lowe, who was a member of the Overtaking Working Group, is a fan of the new rules.

FIA single-seater tech boss Nikolas Tombazis says the new rules will limit the loss of downforce in attacking cars, thereby promoting closer racing.

Williams was one of those teams and Chief Technical Officer Paddy Lowe professes himself a fan of the new regulations. Lowe, while working at McLaren, was a member of the Overtaking Working Group that was responsible for the aerodynamic revamp in 2009, the last time F1 created geometry specifically to allow cars to get closer.

"It's well known that Williams supported this set of regulations," he says. "Having understood a lot of the history and been involved in the past with developing regulations for better car following, I've appreciated the work that's been done recently.

"I was not a fan of the 2017 regulations which, I thought, were a backwards step for overtaking. I feel that not doing anything now would mean we'd have several years of a worsening situation as the teams develop more downforce. The FIA and FOM were correct to act at this point and do something different for 2019 and 2020. I've got quite a high confidence in the technical aspects of what's been done, that it will take us back in the right direction."

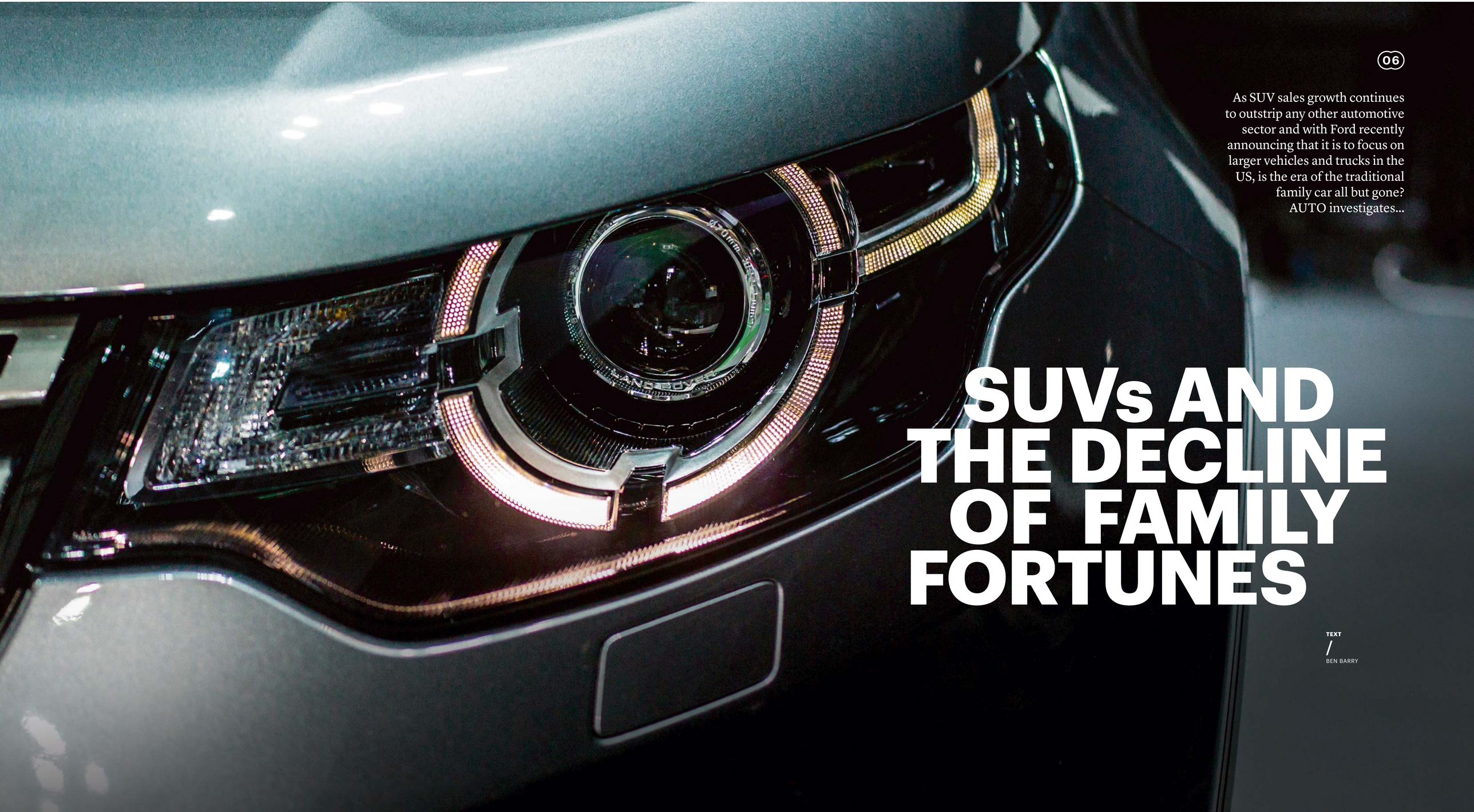
It's hard to put numbers on how much of a difference the new geometry will generate, not least because every car has a unique level of sensitivity to the wake and thus will be affected differently by its reduction. When asked to gauge the potential effects, Tombazis suggests any numbers are little more than educated guesses at this stage, but he is prepared to outline the potential.

"We consider the critical position to be around 15 to 20 metres between the cars. That's the distance we'd expect to see between cars running half a second apart approaching a medium-speed corner. With the current generation, the following car loses about 30 per cent of its downforce in this scenario. We hope to reduce that by 10 per cent.

"It's difficult to provide an exact number. What I would say is that there is a general trend for teams to develop more downforce, which would exacerbate the problem. If we had not intervened, we feel that 2019 would be worse than 2018, and 2020 would be worse than 2019. We now believe that 2019 will be better than 2018, but no one is expecting F1 cars to be fighting like touring cars."

Part of F1's allure is the eclectic demands of different circuits and the challenge of designing cars that can perform across a wide range of conditions, from the wide-open high-speed blast of Silverstone to the needle-threading intricacies of Monaco. Recent years have produced races with record levels of overtaking, but also others where the leader board has a tendency towards the static. The aim of these rule changes isn't to turn the calendar into a homogenous festival of overtaking akin to that seen on oval tracks, but rather to provide the edge-of-the-seat drama that closer racing automatically gives.

This may lead to more overtaking, but equally it may highlight the grit and determination required for a great defensive drive. These are both desirable outcomes: the FIA and the F1 community desire a technical package that allows drivers to use every gram of their experience, courage and skill – and be rewarded for it. The more comprehensive changes planned for 2021 are expected to have a more dramatic effect, but 2019's tweaks are a promising step in the right direction. On this there is a clear consensus.



06

As SUV sales growth continues to outstrip any other automotive sector and with Ford recently announcing that it is to focus on larger vehicles and trucks in the US, is the era of the traditional family car all but gone? AUTO investigates...

SUVs AND THE DECLINE OF FAMILY FORTUNES

TEXT / BEN BARRY

Not long after Alan Mulally took charge of Ford in 2006, fuel prices spiked, the global financial crisis sunk in its teeth and government agencies rolled out aggressive targets to reduce vehicle emissions. Mulally acted decisively to wean Ford's US operations off heavy, thirsty – if profitable – SUVs by leveraging Ford's smaller, more fuel-efficient products already sold globally. SUVs wouldn't be cast aside, but the product portfolio would be better-balanced.

Mulally oversaw the sale of Land Rover in 2008 – another brand top-heavy with large SUVs – introduced the efficient and compact Fiesta hatchback to the US, brought back the Taurus sedan nameplate and championed the Fusion hybrid, a sedan closely related to the Mondeo sold in Europe. His tenure was judged a huge success, with Ford unique among America's big three – Ford, Chrysler, GM – in avoiding Chapter 11 bankruptcy.

How times have changed in the decade since: Land Rover sales have almost doubled from 226,395 in 2007 to 442,500 last year, and SUVs generally have enjoyed a rapid ascendancy. While other segments have typically remained stable or posted sales decreases, SUV sales have lately enjoyed double-digit growth in markets worldwide.

Nonetheless, Ford CEO Jim Hackett signalled a dramatic turnaround from the Mulally era in April this year, announcing that SUVs and pick-up trucks will soon account for 90 per cent of Ford's product portfolio in North America.

The Fiesta, Fusion, C-Max and Taurus are all collateral damage, to be discontinued after their current life cycles in North America. Only the Mustang and incoming Focus Active hatchback will survive in traditional passenger-car segments as Ford seeks to unlock $25.5 billion in cost savings by 2022.

"We are committed to taking the appropriate actions to drive profitable growth and maximise the returns of our business over the long term," said Hackett. "Where we can raise the returns of underperforming parts of our business by making them more fit, we will. If appropriate returns are not on the horizon, we'll shift that capital to where we can play and win."

Of the culls, it's the death of the Ford sedan that's perhaps most shocking, simply because sedans have been a staple of the Ford US line-up for generations. The arrival of Japanese competition might have introduced new nameplates, but the popularity of the sedan has endured: as recently as 2015, the Toyota Camry was the best-selling car in the US for the 14th consecutive year, recording 429,355 sales.

However, the logic of a near total focus on SUVs and pick-ups in the US is compelling. Of the 17.2 million cars and trucks sold there in 2017, 40 per cent were SUVs, and a further 15 per cent full-size pick-ups. Ford's own figures reflect the increasing importance of the two segments. They reveal that while the Fusion sedan slipped to 19th place with 209,623 sales last year – a drop of 21 per cent – all Ford's other entries in the top 20 were SUVs or pick-ups, and all posted increases.

The Ford Explorer large SUV was up 9.1 per cent with 271,131 sales, its Escape mid-size SUV up 0.4 per cent at 308,296 sales, while its F-Series pick-up was up 9.1 per cent to 896,764 units – not only enough to become the best-seller in America, but globally too.

A GLOBAL PHENOMENON

Ford is not alone: General Motors plans to balance the reduction of Chevrolet Cruze sedan production with an increase in crossovers. Fiat Chrysler has ended production of its Chrysler 200 and Dodge Dart sedans. By 2020, LMC Automotive predicts 'light trucks' will account for 92 per cent of Ford's US volume, 84 per cent of GM's and 97 of Fiat Chrysler's.

The rise of the SUV is a global phenomenon. Jato Dynamics reports that 9.86m SUVs were sold globally from January to April of 2018, an increase of 15 per cent over the same period last year. "Forty markets posted double-digit growth in SUV sales," said the report, "while the only markets where demand fell were Vietnam, Japan and Norway."

The SUV has been transformed in recent years. What once tended to be agricultural vehicles on ladder-frame chassis have become increasingly car-like, with monocoque construction, desirable design, high levels of comfort and equipment, and dynamics that can feel more like a sports car than an SUV – especially where Porsche is concerned.

The boundary has further blurred with the crossover, cars with raised ride heights that prioritise style and on-road dynamics over off-road prowess, a logical if somewhat contrary response to buyer usage.

This more car-like feel has helped drive changing customer tastes, while manufacturers have simultaneously expanded SUV offerings. It's a virtuous circle as Felipe Munoz, JATO's Global Analyst, says: "The recent period of sustained growth [in SUV sales] has resulted in changes in the composition of the market – with the SUV segment growing in significance as the only alternative to traditional segments. The increasing significance of the SUV segment is evident in the performance of the market's latest launches; almost two-thirds of the cars launched currently are SUVs, meaning the market offering and consumer demand both favour SUVs, and we're likely to see more from SUV manufacturers as this segment increases its dominance."

The trend is now long-established: Nissan opted not to replace its Almera hatchback in 2006 and introduced the Qashqai mid-size SUV instead. If that seemed risky at the time, the Qashqai recorded 247,939 registrations last year and is consistently well inside Europe's top 10. More recently, Jaguar chose not to offer an estate version of its XE saloon, but does market E-Pace and F-Pace SUVs, the latter its first SUV and now its best-seller by a large margin; it's a jolting break with tradition for a brand best known for its sports cars and saloons. ▸

Ford CEO Jim Hackett revealed in April that SUVs and pick-up trucks will soon account for 90 per cent of the company's product portfolio in North America.

The Mustang EcoBoost (below) and new Focus Active hatchback remain in Ford's product range, but many smaller models are being dropped.

Sales of the Ford Explorer (above) have increased rapidly, whereas the Mondeo-like Fusion will be discontinued after its current life cycle.

'Almost two-thirds of the cars launched currently are SUVs and we're likely to see more as this segment increases its dominance'

FELIPE MUNOZ, JATO

When Nissan brought out the Qashqai in 2006 it was judged as a risky move; now it's among Europe's best-selling cars.

Analyse Jato's global figures further and another striking trend emerges: the rise of the small SUV. So while the 4.01m sales of C-segment SUVs – including the Nissan Qashqai, Ford Kuga and Volkswagen Tiguan – in the first four months of this year represent a 14 per cent increase, the B-segment or subcompact SUV category has grown at a far greater rate – the 2.28m units of Renault Capturs, Volkswagen T-Rocs and the like represent a 28 per cent rise, the most significant increase of all SUV segments. These cars are much more fuel-efficient than larger SUVs, and more suited to cramped urban environments. That they provide entry to SUV ownership at a much more affordable price further underlines the appeal.

The implications for the future composition of vehicle segments are dramatic, as while C-segment and larger SUVs are already challenging sedans/saloons globally, C-segment SUVs also pose a threat to the hatchbacks that top Europe's sales charts – the Volkswagen Tiguan is the fifth best-selling passenger car in Europe, behind the Volkswagen Golf, Renault Clio, VW Polo and Ford Fiesta.

The rise of the B-segment looks certain to intensify this shift, offering a tempting alternative to the Clio/Polo/Fiesta. Indeed, in May 2018, European sales of SUVs grew by 24.2 per cent against a decline of 8.5 per cent for all other segments. Of the SUV sales, the smallest SUV segment was up 37 per cent.

The B-segment SUV is also booming in traditionally 'bigger-is-better' America. Ford data shows that just four years ago, 18- to 24-year-old Americans bought 8,121 subcompact cars but just 443 subcompact SUVs. By 2017, that margin had narrowed to 3,981 subcompacts and 2,840 subcompact SUVs. Given current trends, Ford projects subcompact SUV sales could gain the upper hand as early as next year.

Traditional segments are, however, likely to survive globally. The station wagon/estate car was the forerunner to the crossover, maintaining the best virtues of the saloon car while adding more luggage space. Sales remain stable at around 2.5m units globally, mostly due to the genre's enduring popularity in Europe, which accounts for 72 per cent of sales.

Hatchbacks, too, continue to be consistently popular and sell well globally – the Golf is Europe's best-selling car with 483,105 registrations last year and recently posted a 20 per cent sales increase in Germany. The Honda Civic, meanwhile, is the world's fourth best-selling car, although it is available in multiple body styles.

While some manufacturers are dropping sedans from their range, Volvo's Stefan Elfström says the company still sees a future for them.

LAST CHANCE SALOONS?

The future of the saloon/sedan looks more uncertain, and more fragmented according to market and price point. Globally, the Toyota Corolla sedan stands as the world's second-best selling vehicle, with sales up 3.3 per cent on the back of a 19 per cent surge in China, a stronghold for the segment. In America, the Toyota Camry held steady with 387,081 sales, the former best-seller still good for sixth position overall.

Even amid news that Ford plans to stop selling sedans altogether in the US, Volvo – owned by the sedan-loving Chinese – recently unveiled the S60 sedan at its new American production facility. With rivals easily shifting six-figure units in America, a strong market in China and demand in Europe, it can clearly sense an opportunity.

"The segment as a whole is shrinking, but Volvo sees potential to grow its share of the segment, as well the amount of mid-size sedans it sells as a whole," says Volvo Cars media relations manager Stefan Elfström. "The S60 is a new take on the segment for Volvo. Compared with the previous version, it targets a younger demographic and we'd expect it to sell more."

In Europe, the premium saloon segment continues to perform strongly: Mercedes' C-class beat the Renault Megane and Vauxhall/Opel Mokka. But the rise of the German premium set and the increasing prevalence of SUVs is squeezing the mainstream saloon into oblivion.

In 1997, Ford sold 322,716 Mondeos in Europe, but by last year that number had tumbled to 56,173 units. Toyota has cancelled its Avensis saloon in the UK; Renault stopped selling its Laguna to British buyers in 2012.

So while the future of Ford's traditional and strong-selling hatchback models is surely assured in Europe and many other markets, the case for the Mondeo appears increasingly less robust – especially with Ford US already setting the precedent and ending production of its comparable models.

Not everyone, however, is convinced Ford has made the correct call in the US. Speaking to *Automotive News*, Chris Lemley of Sentry Auto Group near Boston called Jim Hackett's decision "a short-sighted overreaction to a shift in the market".

The sales expert drew parallels to the situation faced by former CEO Alan Mulally a decade ago, and noted Mulally could have similarly axed SUVs and pick-ups. "Ford's leadership demonstrated the good judgement to hedge its bets, recognising that not all predictions of the future will come true," concluded Lemley.

Time will tell if Ford's strategy will pay dividends. What's for certain is that SUVs are steadily – and sometimes rapidly – increasing their share of every market segment they enter. That they'll continue to do so for the foreseeable future seems a safe bet. ◂

'The S60 is a new take on the sedan segment for Volvo. Compared with the previous version, it targets a younger demographic'

STEFAN ELFSTRÖM, VOLVO

06

A NEW WORLD VIEW

Ban Ki-moon will draw on his experience as UN Secretary-General to drive forward his Centre for Global Citizens.

PHOTO / LECHNER

TEXT / JUSTIN HYNES

In a bid to promote sustainable development, former UN Secretary-General *Ban Ki-moon* has established a Centre for Global Citizens. Here he explains what it means to be a citizen of the world, why women and young people are at the centre of his vision for a better future, and why safe mobility is one of the centre's key early goals

In partnership with former Austrian President Dr Heinz Fischer this year you launched the Ban Ki-moon Centre for Global Citizens. Can you explain the reasons behind your decision to launch the centre?

> As UN Secretary-General, I promised to do everything I could to improve this world. Even now, having ended my tenure as UN Secretary-General, this promise does not stop. I will continue to work for the causes I deeply believe in. Heinz Fischer is a good friend of mine and I know he thinks the same way. We will build on our former political leadership roles and drive global citizenship.

How do you define the term global citizen? What does that mean and why is it important that people think of themselves as such?

> Global citizenship means working together. Previously, global interconnectedness was limited. Also the immediacy of this connection was limited. Today, we are all connected thanks to new technology and new means of communication.
> However, if people continue to think only about themselves nothing will change. Global citizenship means first and foremost to think about others and not only about oneself. ‣

We have to lead younger generations to think and act in that direction. Only then can the world become a better place.

The centre has identified the empowerment of women and young people as key goals. Why?

More than half of the world's population is female and more than half of the world's population are under 24 years of age. Yet they are groups that do not enjoy the same rights and opportunities as others, and they are often not given a voice around decision-making tables. That is particularly true for women. As UN Secretary-General I tried to change this and I managed to increase the number of women in leadership positions at the UN significantly. I continue to appeal to all organisations, governments and businesses to do the same. I am happy that the UN has in the meantime reached parity between women and men in leadership positions. Furthermore, I created the position of UN Special Envoy for the Youth. It is rewarding to see that the position and its outstanding envoys enjoys great acceptance and is still recognised as an important contribution to the work of the UN with young people.

The centre also places the UN's Sustainable Development Goals at the heart of its mission. How does it intend to support and promote the SDGs worldwide?

Saving our planet, lifting people out of poverty, advancing economic growth... these are one and the same fight. We must connect the dots between poverty, climate change, water scarcity, energy shortages, global health, food security and women's empowerment, as well as other pressing issues. Solutions to one problem must be solutions for all.
The Ban Ki-moon Centre, with its partners and network, will try to do its humble part in helping in the advancement of the SDGs and empower global citizens, particularly youth and women.

Of those Sustainable Development Goals, which, for you, are the most important?

All of the SDGs are important. There is no ranking. They are all interconnected. The goals are the people's agenda, a plan of action for ending poverty in all its dimensions, irreversibly, everywhere, and leaving no one behind.

Can you explain the rationale behind the composition of the board and can you offer some detail as to why and how FIA President Jean Todt is involved in the centre?

I nominated Jean Todt as my Special Envoy for Road Safety when I was UN Secretary-General and it is encouraging to see that he continues to act in that function also under the current UNSG António Guterres.
I was always impressed by Jean's political commitment, his engagement and his continued hard work for the UN Decade of Road Safety. We need to save millions of lives each year on the world's roads, and Jean Todt and his wife Michelle Yeoh are very active in drawing the attention of global, regional and national leaders to this issue. Jean agreed to also share his expertise with the Ban Ki-moon Centre for Global Citizens.

'Saving our planet, lifting people out of poverty, advancing economic growth... these are one and the same fight'

The South Korean has the backing of FIA President Jean Todt, the UN's Special Envoy for Road Safety, in his new centre's work.

One of the centre's projects involves 'leadership interventions' in partnership with the FIA in road safety issues in East Africa. Can you explain what the term 'leadership interventions' means and also offer some detail about this project: its scope, area of operation and goals?

The centre is looking into ways of supporting the FIA in its work on universalising road safety conventions, particularly in Africa. Together, we have started reaching out to governments in East Africa and we hope we can steer further interest in the conventions, and assist with the expertise of the FIA in terms of ratifying and implementing these conventions in particularly difficult contexts. Every country that joins increases the chance of saving lives on the roads.

Road safety was included in the SDGs during your term as UN Secretary-General. In your view, why is road safety now a priority for the UN?

I launched the Decade of Road Safety in 2011. It is still ongoing and is dedicated to Action for Road Safety to help all countries drive along the path to a more secure future. However, too many people still die on the road every day. Particularly the younger generations in developing countries are affected. Some 3,500 lives are lost every day. We therefore need to improve road safety everywhere.

How do you see the pandemic of road fatalities and injuries being tackled and where do you currently see the biggest crisis points?

We must make driving and traffic safer for young adults. They account for more than half of traffic fatalities globally. Accidents are still the world's leading cause of death for 15-29-year-olds. Measures such as legislation, behavioural change, safer vehicles and improved infrastructure need to be supported because road safety is a shared responsibility.

Finally, what is your long-term hope for the centre? How do you wish it to develop and what impact would you like it to have?

I want the centre to contribute in a modest and realistic way to some of the most pressing global issues. Despite the challenges we face, if we join together in strong partnership we can move forward and achieve our global goals, creating a brighter future for all. ◂

Quadruple amputee Frédéric Sausset overcame disability to realise his dream of racing at Le Mans.

SRT41: MISSION LE MANS 2020

TEXT / DANIEL ORTELLI

Two years on from racing in the Le Mans 24 Hours, quadruple amputee *Frédéric Sausset* is embarking on another incredible motor sport adventure – building a full team of disabled drivers for a season of endurance racing

06

In 2016 Frédéric Sausset stunned the motor racing world by overcoming serious disability as a quadruple amputee to take part in and finish the sport's most famous endurance race – the Le Mans 24 Hours.

In a tale of remarkable ambition, fortitude and determination, Sausset recovered from a 2012 infection that required his legs to be amputated above the knee and his arms removed at the forearm, and set himself the goal of racing at Le Mans. Four years later, having reinvented the technology and equipment needed to drive a racing car, Sausset steered his specially-adapted Morgan LMP2 prototype across the line and into the history books. It was, however, just the start of the story.

In the week preceding the event, in which he participated as the 'Garage 56' entry for innovative technologies and projects, Sausset announced that following the race – with the support of the FIA and Le Mans organiser the Automobile Club de l'Ouest (ACO) – he would endeavour to establish a sports car team for disabled drivers.

In the wake of his ground-breaking achievement at Le Mans, Sausset's plans seemed to take a back seat as he became a household name in his region – his biography was written and published by French journalist Stefan Lhermitte – and returned to the clothing business he has run with wife Frédérique for the past 26 years. Behind the scenes, however, Sausset was hard at work developing the next chapter of his remarkable tale.

TEAM BUILDING

Via an initiative entitled *'Un Volant Pour Tous'* (A Wheel for All) the entrepreneur recruited three other disabled drivers to race for his new team – former Japanese MotoGP and Superbike rider Takuma Aoki, Belgian motocross expert Nigel Bailly – both of whom are paraplegic as a result of riding accidents – and Snoussi Ben Moussa, a professional driving instructor for the past 10 years, despite the loss of a hand.

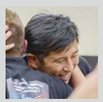
"Our selection was based on human qualities as much as professionalism and driving competence," says Sausset. "By word of mouth, 38 drivers applied, then 12 came to test at Le Mans on the Bugatti circuit in October 2017.

"They drove my customised Audi R8, with Christophe Tinseau as an instructor in the right-hand seat. And then there were six left to test the Ligier prototype in the afternoon. And then there were three... We need this to be a family," Sausset insists.

The team made its track debut at the Circuit Paul Ricard in May using a Ligier JSP3 LMP3 car and finishing in 23rd place. A much improved outing at the Dijon-Prenois track in July resulted in a P17 placing.

"The race in Dijon was good – we were only three seconds away from Mathias Beche on a lap, who is a reference in WEC, so this is very positive. The team is getting together slowly, although the change of drivers takes up a lot of time. We are improving technically, physically – for the drivers as well as the mechanics," says Sausset, adding that he intends to work on the change of driver ▸

La Filière: Three drivers, one goal – Le Mans 2020



TAKUMA AOKI, 44, born in Tokyo, was a top-level motorcycle rider in the 1990s, winning the All Japan Superbike title in 1995 and '96 before finishing fifth overall in MotoGP in '97. A huge accident in '98 left him in a wheelchair, but he rebuilt his racing life to win the GT Cup in the Asian Le Mans Series in 2016. Like Sausset he is an entrepreneur, whose message is, "The possibilities of human beings are infinite."

SNOUSSI BEN MOUSSA, 35, is a driving instructor at the Propulsion performance driving school near Paris. Despite losing his left hand in an accident he finished the Le Mans Karting 24 Hours in 11th position in 2013. He believes La Filière Sausset allows disabled drivers to show the world they can be as quick as able-bodied drivers and that "it's about time disabled sportsmen and women were fully accepted in all sorts of sporting events".

NIGEL BAILLY, 28, has been paraplegic since a motocross crash in 2004. He lives in Trazegnies (Belgium), is a regular competitor in the Belgian Gentleman Drivers' Club (BGDC) series and describes his road to Le Mans with La Filière Sausset as "a crazy experience".

Sausset's latest challenge has been to create his own team of disabled drivers, who compete in the VdeV endurance series.

with motor sport authorities, as it directly impacts on the results of his team.

"This is our major problem because we cannot do it as fast as other drivers," he says. "We are discussing this aspect with VdeV promoters, the FIA and the French Federation (FFSA). It would be good to have a sort of a Balance of Performance (BoP) to compensate for this situation, because we have a major handicap in that regard.

"We don't want to have specific disabled series, we want to participate in normal series. This is very important for Gérard Saillant, the president of the FIA Medical Commission," Sausset stresses.

And he wants his team "to be staying for long, with disabled drivers of a high level [competing] on a regular basis, in various series, not only in endurance racing."

Despite the difficulties, the steady improvements have continued and last month, at the Circuito de Navarra in Spain, at the end of a six-hour race, the team of rookies claimed P13.

Two rounds of the VdeV remain – the Four Hours of Le Mans in October and the Six Hours of Estoril in November. Beyond this year's series the chief goal is Le Mans 2020. The ACO president, Pierre Fillon, has already validated an entry for La Filière Sausset, with the team boss set to return to Garage 56.

"We are preparing for 2019, discussing things with Gérard Neveu [the head of WEC], who is supporting this project, to push for a French academy for high-level disabled drivers," says Sausset. "We have a lot of significant media attention, but not enough, I believe, with regards to the level of performance of our three drivers. [The sport] remains complicated in terms of sponsorship – even for the big teams – but I believe we bring something completely different, a different set of social and societal values, a different perspective."

So what about the European Le Mans Series (ELMS) in 2019 as a stepping stone to Le Mans the following year? "Next year would be a problem in terms of budget, so we prefer to postpone ELMS to 2020, before Le Mans, in case we race in GTE at the 24 Hours," explains Sausset. "At one point the Michelin Le Mans Cup appeared to be an option, but two hours with three drivers is not long enough for us. We are still looking for funding, and it's not easy."

You cannot stop a man from dreaming and Sausset's restless mind is also looking at targets beyond his endurance team, including testing a Formula E single-seater. "I want to discuss this with [FIA president] Jean Todt as soon as possible. It could be easier, because of the technology on hand, for disabled drivers. In Formula E, you only have to accelerate and brake. The software for our LMP2 car at Le Mans worked well and I am sure it can be adapted to other racing cars, along with the new Le Mans project.

"I would like to progress on the Formula E testing project. We also need to convince potential partners that we need extra funding, and that an investment in La Filière is a sensible decision," the boss adds. His 2016 Morgan LMP2 prototype is now at Le Mans' 'Museum of the 24 Hours'.

The credibility is there, Sausset believes. "We have a Belgian guy, a Japanese guy, Takuma [Aoki] did MotoGP so he has a big impact in Japan. We're even considering organising a demonstration in North America and another one in Asia, then one in Japan for the Olympic Games in Tokyo in 2020. We need extra budgets in addition to the budget of La Filière."

The next selection process for the team will start in 2020, for a new three-year cycle. Gentlemen, start your engines... ◂

PHOTOS PASCAL AUNAI AND MASSIMO MOLINA

'We don't want to have specific disabled series, we want to participate in normal series'

Racing for all

At the end of last year the FIA established a new Disability and Accessibility Commission. Its president, Nathalie McGloin, explains what the group has set out to achieve

What is the remit of the FIA's Disability and Accessibility Commission?

"The remit is simple: to make motor sport the most inclusive sport in the world without compromising safety. It is my personal mission to show the world that this sport is for everyone."

The commission was established at the end of 2017. What are the initial goals?

"The main pillars this year are to create a Global Disabled Licencing Process, work on the Back To Racing programme for existing drivers who have suffered life-changing injuries and wish to continue in motor sport, and to work on a strategy for guidance on approved adaptations for competition vehicles."

Is there more to be done away from the cockpit as well, in terms of how accessible motor sport is for everybody attending or working at races?

"After presenting the third-place trophy at the British Grand Prix (above), it's apparent that we need to start making circuits more accessible to people with disabilities. I'm hoping to lay the foundations for an 'Accessible Podiums' campaign to begin in 2019 whereby we make all GP circuits accessible for competitors, volunteers, officials and spectators, with plans for this to filter down to non-FIA circuits."

On a global basis, how great is the overall challenge?

"When you talk about things on a global scale, you will always face challenges. There are a lot of very successful and inspirational disabled drivers competing globally who make my job a lot easier through the legacy their careers are creating.

"I think Frédéric Sausset opened the door at Le Mans in 2016 for example. Take what Billy Monger has achieved, and continues to achieve, as a perfect example that having a life-changing injury doesn't have any bearing on your desire or ability to achieve incredible results in motor sport. Gustav Engljähringer is winning his class or getting on the podium in nearly every VLN round at the moment as the only tetraplegic to race in that series.

"Therefore, when I am faced with opposition to plans that we are making with the commission, drivers such as these will serve as evidence and proof that it can be done, it is and will continue to be safe and that we absolutely deserve to be here competing on level terms."

The road back to racing /

Two of racing's most high-profile stars, F3 podium finisher *Billy Monger* and motor sport legend and double Olympic champion *Alex Zanardi*, discuss their path back to top-level competition

TEXT / JENNIE GOW

Alex Zanardi lost both his legs when driving in the American CART series race in Germany in 2001, while Billy Monger last year sustained similar injuries when his Formula 4 car crashed into a rival's stationary car at Donington Park in the UK.

For both men, this could have been the end of their careers, but instead it has spurred them on to achievements they might not have thought possible prior to their accidents.

But how do you make a return to the sport you love when the rules haven't yet been written? As Zanardi explains from his experiences just two years after his accident, you write the rules yourself.

"I was asked to drive in the last race of the ETCC [European Touring Car Championship], which was going to be held in Monza, and so of course I had to get a licence. It wasn't easy because nobody had ever done it before so everybody was very scared.

"Ignorance is what normally scares you the most and everyone was sure that if they allowed me to drive I would have a big accident, so they were looking for an excuse to say no. [I went] through every type of exam and scan. They scanned my head to the point where I said, 'Hey guys, I lost my legs not my head!' But finally I passed every test and they had to give me a green light. I got my licence, went to Monza and finished my first-ever ETCC race in seventh place, scoring some points. So that was fantastic and the following year BMW Italy asked me whether I wanted to do the entire season, and here I am."

In 2005 Zanardi took his first victory since his accident, back in Germany where it had happened four years earlier, by winning the World Touring Car Championship's Race of Germany.

"When I finally stepped on the highest step of the podium it was a very special moment, but not from the point of view you would imagine," he explains. "It was not like emotion, crying or whatever thinking 'wow it's a miracle'. It's not a miracle for me. It had to happen, actually I had to wait too damn long to see it happen, but it was special to see in everybody's eyes the joy, because everybody was happy and after that everything changed. The question was no longer, 'Alex, what are you trying to achieve?' After that the question became, 'What's wrong with you today, you're only 10th on the grid?'

"I want to believe to a certain degree that I helped guys like Billy as well because they knew he was a very good driver prior to his accident so there were a lot of people interested to see whether they could recover his talent, whether they could help him find the technical solutions that would allow him to display his talent once more. And with him winning races, scoring podium finishes, it's of course a great thing but probably nobody is that surprised to see him doing well because people are expecting him or disabled drivers with the right technical solutions to overcome their personal problems and let their talent emerge once more."

Monger quickly acknowledges what Zanardi has done to help change opinions and open doors for other drivers who have had similar accidents.

"What Alex did to get the perception of other people to change towards disabled drivers has helped me a lot. Especially when I asked why I couldn't race a single-seater again. They didn't have an answer."

'What Alex did to change people's perceptions towards disabled drivers has helped me a lot'

Monger has a different dream to Zanardi's though. He didn't want to switch from single-seater racing just because he'd lost his legs. His ambition remains to be a Formula 1 driver, and once again the FIA stepped in to see if it could help.

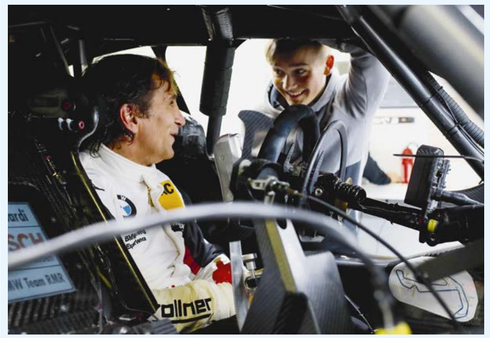
"There are always going to be people concerned that you won't be safe, for yourself or the people around you," he says. "So I had to prove that I was capable of driving the car in a safe manner, that I was able to get out the car if I did have an incident within a certain time period and, finally, that the controls were viewed as safe and up to a level that the FIA were happy with."

"We had lots of conversations with the FIA and it wasn't until last December that we got the all-clear with what the guys at [my team] Carlin had come up with control-wise and in terms of safety procedures for me being able to get out the car. That was when they said I would be OK to race. That was a pretty good feeling for me."

Carlin went on to give Monger time in its simulator and later signed a deal for his return to British Formula 3. He went on to stand on the podium in his first race back since his accident, claiming third at Oulton Park, and then secured another third-place finish at Spa as well as two fastest laps this season.

Both men are now leading the way for disabled drivers to compete on the same level as their able-bodied counterparts.

While both have suffered huge personal tragedy, pain and spent hours trying to get their bodies back to their best, they haven't languished in their suffering – instead they have embraced their situations and are still pushing and redefining opinions every day. Both men are truly inspirational.



Double amputees Alex Zanardi and Billy Monger have proved they can compete alongside able-bodied drivers.

06

Childhood's end

While the most obvious transport risk for children stems from road traffic accidents – with 350,000 youngsters dying each year on the world's roads – there are a range of additional dangers that are affecting the health and safety of millions worldwide, as a new FIA Foundation report reveals...

TEXT
/
KATE TURNER

The international community is failing to take action on a global health crisis caused by road traffic, which kills 350,000 children and adolescents through violent road crashes and the effects of urban outdoor air pollution.

The headline figures of child deaths are, however, only one part of the story. Millions more live at risk of serious, long-term health issues. The combined health impacts of traffic on young people are immense, and growing. Like an iceberg, the vast mass of suffering, ill-health and environmental degradation is hidden below the waterline, and will cause untold damage if action is not taken.

Streets dominated by motorised traffic also result in parents discouraging their children from walking and cycling to school. Reduced childhood activity is a global trend: 81 per cent of adolescents were insufficiently physically active in 2010 and the number of obese children and adolescents has increased tenfold since the mid-1970s.

Failure to address these dual issues means that there is a fatal disconnect in global policy for child and adolescent health, which must be addressed to end the death and suffering of millions of children. The FIA Foundation's latest report on child health, Unfinished Journey, launched at the World Health Assembly, draws together the multi-faceted impact on children and their health. ▸

Polluted streets in India. At least 127,000 young children worldwide died from lower respiratory diseases in 2013.

"Two billion children live in areas breaching World Health Organisation (WHO) air quality guidelines"

ROAD TRAFFIC RISKS

Every day, the equivalent of two large schools are emptied of children as a result of road accidents. Three quarters of a million children and adolescents die each year on the world's roads, while millions more suffer life-changing injuries and other serious and long-lasting health problems. Road traffic injury is the fifth leading cause of death for children aged five-14 and the leading cause of death for male adolescents.

There are huge regional variations in risk across the globe. A child in Sub-Saharan Africa is twice as likely to be killed as their counterpart in the next most dangerous region, South-East Asia.

One constant is that the most vulnerable road users in these areas are not in cars but travelling as pedestrians, or on bicycles, motorcycles and public transport. In high-income countries, by comparison, a higher proportion of children and adolescents are killed as car occupants.

In African cities up to 90 per cent of children walk to school, yet there are no pavements on more than 90 per cent of roads combining pedestrians and fast traffic (moving at above 40km/h). Avoiding a calamitous and costly collision of demography, motorisation, poor urban planning and bad governance in Sub-Saharan Africa must be a priority to address the threat.

AIR QUALITY

It is widely accepted that traffic pollution is a significant contributor to the problem of air quality in urban areas, alongside industrial, agricultural and domestic emissions.

Two billion children live in areas breaching World Health Organisation (WHO) air quality guidelines, while every day 300 million of these children are walking to school and playing in poisonous, toxic air. The damage done by emissions is invisible but serious; beginning even before birth when mothers are exposed, and reaching far beyond the headline figure of attributable child deaths, affecting the health and life chances of generations.

Exposure to toxic air causes serious internal damage to children, especially to their still-developing lungs and respiratory systems. Babies and children aged under five suffer the most from dirty air; at least 127,000 young children died from lower respiratory diseases in 2013, including pneumonia, now the biggest killer of under-fives. Children's developing immune systems are more exposed to respiratory infections resulting from exposure to harmful pollutants.

Vehicle pollution is particularly dangerous for children because of their high breathing rates, taking in more air as a proportion of body weight than adults, while harmful emissions from cars and trucks are delivered directly at street level into the mouths and noses of children who are much closer to exhausts than adults.

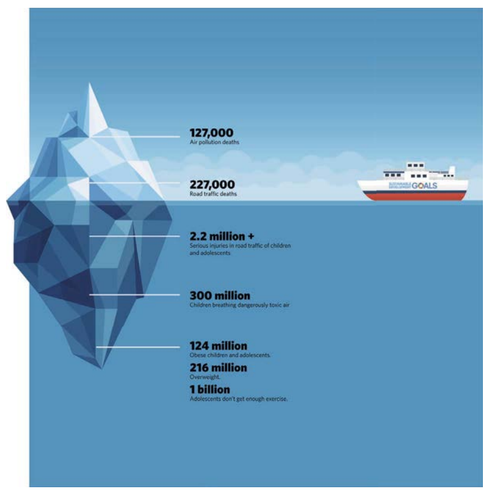
Particulate matter (PM) and nitrogen oxides (NOX) constitute the major traffic pollutants. Ultra-fine PM2.5 particles are just a thirtieth of the width of a typical human hair, penetrate deep inside the lungs and subsequently enter the bloodstream to cause a huge range of health problems. NOX, meanwhile, can exacerbate a range of breathing issues from pneumonia, asthma, and lung inflammation and reduction in overall lung function.

In addition, polycyclic aromatic hydrocarbons (PAHs) from high vehicle traffic, particularly that running on diesel, have been shown to damage sections of the brain for learning and development. There is also growing evidence that traffic pollution exposure could be affecting the learning capacity of millions of schoolchildren.

OBESITY

There is growing evidence that neighbourhoods designed for safe, sustainable journeys and activity help reduce childhood obesity, which is an early warning for a range of health issues in later life. This is vitally important in the fight against non-communicable diseases (known as NCDs) including heart disease, colon and breast cancers, diabetes and depression.

Globally, the WHO estimates that as many as three million deaths each year are related to physical inactivity. It warns that "rapid social and economic development has changed the environment many children are now growing up in", and lack of access to safe and attractive space for physical activity is contributing to an obesity epidemic. By 2030, Americans will be 46 per cent less physically active than in 1965; in China, citizens will be 51 per cent less active than they were in 1991, while childhood obesity has increased tenfold since the mid-1970s.



Road traffic injury is also now the fifth leading cause of death for children aged 5-14 years old. Left: deaths from air pollution and road traffic accidents are the tip of the iceberg.

INEQUALITY

The burden of road traffic is not borne equally. It is the poorest children within communities and those in the poorest cities who suffer most as a result of road traffic. It is an issue of equity and social justice; those who contribute least to the problem take the greatest burden of consequences on their shoulders.

Exposure to road traffic injury is closely connected to the local environment; injury is the area of public health with the steepest social gradient, with road traffic the most common cause of injury for children living in poverty.

This is true in all societies: between New York City's lower-income East Harlem and the wealthy Upper East Side, children accounted for 43 per cent of crash victims in the poor community compared to just 15 per cent in the richer neighbourhood, despite making up the same proportion of the population. The WHO highlights that "attempts to address road safety for children are, therefore, inextricably linked to notions of social justice, and should be part of global efforts to reduce poverty."

A JOINED-UP SOLUTION

The causes of this epidemic are interlinked. At their core is uncontrolled urbanisation meeting unchecked motorisation, magnified by inequality, and this requires an integrated response.

If a 'siloed' approach is taken to tackling road safety, NCDs or environmental pollution in isolation from each other, efforts to reduce the problems are doomed to failure. A mobility focus on child health, with a key coordinating role for the health sector, can help to bridge this gap and encourage a fully joined-up approach.

Addressing the root causes – by reducing traffic, implementing a Safe System approach, featuring speed control, protecting pedestrians and other vulnerable road users, and promoting active transport – can have cross-cutting benefits for a sustainable and cleaner environment, for healthier citizens and for the process of tackling climate change.

Avi Silverman, Deputy Director of the FIA Foundation, said: "So much progress has been made to address the leading causes of child mortality, which has focused predominantly on under-fives health. However, when the children make their way into adolescence and towards an independent life, they are left behind. Global health institutions are now counting, but not yet fully addressing, the avoidable deaths, injuries and ill-health that result from unchecked motorisation and urban growth."

The tragedy is that we already know how to prevent road traffic deaths, injuries and pollution, and that these solutions are highly cost-effective.

But to realise this health dividend, the yawning gap between analysis and action has to be fully addressed. That is why the FIA Foundation has called for the first-ever UN Special Summit on child and adolescent health to raise visibility of the issues, build political commitment and deliver action and resources for sadly neglected areas of public health.

According to the Unfinished Journey report, a global commission on road traffic-related child health issues should be established to make recommendations for a coordinated global response, reporting urgently to the UN Secretary General. This should be combined with joint action using climate funds, scaling up 'healthy streets' policies designed to enable safe walking and cycling, improving air quality and reducing carbon emissions.

"It is clear that a change of approach is desperately needed to tackle these problems," added Silverman. "A UN Special Summit on child and adolescent health can provide the urgency and leadership to save millions of lives between now and 2030."

The urgency cannot be understated. For many millions of children, each day is a battle against the risks of dangerous traffic, pervasive pollution and a host of related illnesses. This is a scourge from before the cradle, affecting health and quality of life right through to a premature grave. Every day costs thousands of lives, and global inaction must end. ◂

Young lives at risk

Chrisviane was buying ice-cream with a friend after school when he was hit by a taxi. The seven-year-old, from Côte d'Ivoire, missed two months of schooling because of a serious leg injury. Fortunately the driver assisted with medical costs – too often poor parents are left in appalling debt.
Seventeen-year-old Ngoc was knocked off his electric bicycle in Vietnam and suffered a serious head injury. Doctors feared he would be left in a vegetative state, yet he is slowly recovering day by day. But his education is on hold and his family has taken loans to pay the massive bills for his care.
Daniel is nine and lives in London. His walk to school takes him along the congested Old Kent Road. "London is having a bad time right now with air pollution," he says. "Diesel cars are making this happen. The government needs to stop the air from being polluted."
Five-year-old Ezequiel from Uruguay was left orphaned and paraplegic after a motorcycle crash. Ezequiel's parents died, leaving him as the only survivor, with head trauma, severe chest trauma, rib fractures and a serious lung injury. He is now cared for by his aunt and uncle.
Nneka was 14 when she was hit by a car while walking to school in Kingston, Jamaica. A talented netball player, she lost a leg in the crash. Nneka has lent her voice to the global call for action and met the Prime Minister of Jamaica to urge him to tackle speeding traffic.
Nairobi schoolgirl Purity (pictured below), aged 12, suffers from asthma and has to take daily medication. She walks for more than an hour to school every day. She says: "When the cars are passing they leave the black smoke and I breathe it in. It affects my lungs and I start coughing."

The electric company 06

After taking over from Carlos Ghosn as Nissan CEO, *Hiroto Saikawa* is pushing ahead with plans to future-proof Japan's second largest automaker through the electrification of its range

TEXT / EDOARDO NASTRI

Constant growth, electrification and massive investment in new technology. These are the three key phrases when it comes to the future of the Nissan Motor Corporation during the era of Hiroto Saikawa, President and CEO of the second biggest Japanese company as of April 2017.

After just over a year at the helm for the new CEO, a plan to increase the use of electric power throughout the range is taking shape.

Globally, the Renault-Nissan-Mitsubishi alliance has invested five billion Euros in the study, development and design of new electric cars. It's an impressive amount and one that also has positive repercussions for the motor sport departments of the various brands of the alliance. Having first unveiled the livery of its new Formula E car, Nissan is now preparing to enter the FIA championship for 100 per cent electric racers, which begins its fifth season of competition in December at the Ad Diriyah track in Saudi Arabia.

The Japanese marque will replace Renault, which is pulling out of Formula E after four seasons to focus purely on Formula 1. Thanks to the knowledge gained from years of working with zero-emissions power units, Nissan is looking in good shape to make a grand entrance on the Formula E stage, much to the satisfaction of Saikawa. The experience in this field is largely down to the four billion kilometres its Leaf model has covered on roads all over the world.

With its wealth of electric car knowledge, Nissan is well-placed to enter the Formula E Championship later this year.

SETTING THE STANDARD

After 17 successful years for Nissan under the management of Carlos Ghosn, who is now concentrating on the alliance as a whole following the incorporation of Nissan into the fold in 2017, Saikawa is under pressure to perform. But the Japanese executive knows Nissan very well having worked there since 1977, the same year in which he graduated in economics at the University of Tokyo.

He then filled various roles at Nissan in Europe and the United States, and in 1999 was Chairman of the Management Committees for both continents. Apart from his responsibilities at Nissan, from 2006 to 2016 Saikawa was a member of the board of Renault and is currently President of the Japanese Car Constructors Association (JAMA.) He therefore has first-hand experience of the big changes the motor industry has gone through over the past 40 years. It's been a real revolution that has led to Nissan making substantial changes to its targets.

"Doing business in today's car industry is completely different and probably a bit more complicated than it was in the 1970s and '80s, when the main focus was on exports and expansion into new markets such as the United States in order to make Nissan an international brand," Saikawa told the Automotive News World Congress back in January.

"My view is that our brand has changed and is changing in an absolutely radical fashion. Today, we fight to offer the best possible technological product in a global market with interesting new elements such as sustainability and electrification all heading towards the aim of zero emissions."

During his first year in office, Saikawa and Ghosn have worked side by side to ensure that the passing of the baton didn't have any negative repercussions. "It's not been easy stepping into the shoes of such a charismatic leader and my first thought was that I better be in top shape physically and mentally in order to do a good job," Saikawa smiles.

"Carlos Ghosn set the standard at Nissan for 17 years and his first task was to deal with a company crisis before aiming for a global market, using many resources to expand the brand's global footprint, from China to India, to Russia and Brazil. Now the expansion has ended and it's time to focus on maintaining the position we have built up over all these years. We have to concentrate on what today's market wants, so as to be competitive. I am referring specifically to the new technologies, first and foremost, electrification, autonomous driving and connected cars.

"In order to remain competitive we have to spend our resources in these sectors," he adds. "It's a natural evolution and the keynotes for my era will be constant growth, electrification and technology. The automobile today is technology and that leads to different relationships when compared to the classic suppliers of the past, with new challenges and new destinations to reach. We should not forget to also confront companies set up to offer and develop new technologies, such as those in Silicon Valley." ‣

The electrification of the range is the strong point of this transformation and the targets set by Saikawa are clear: in Europe and Japan, electric-powered Nissan cars will make up over 40 per cent of the total in 2022 and more than 50 per cent by 2025.

"Thanks to Leaf, we can claim to be real pioneers of electric mobility," he says. "Today, we have the second generation of this car at a time when many of our competitors are launching their first electric car. Our aim is to maintain our position as leader in this sector and to continue to invest significantly in this direction."

Saikawa is also aware that not all markets are the same and that the level of electrification cannot be the same in every country for economic and infrastructure reasons. For example, the American market is still hard to understand for the Japanese manager as it covers a huge area, but with very different lifestyles and vehicle needs, which varies from state to state.

"In the USA, cars are very heavy and somewhat out of step with the rest of the world. They have a lot of big SUVs and pick-up trucks, which are very difficult to power electrically because their outsized weight and volume don't suit battery autonomy," says Saikawa.

The scenario for the future is uncertain but Saikawa's predictions are based on two key dates. "Around 2019-2020, many of our competitors should really be ready to sell electric cars. The competition will be tough, but customers will have the opportunity to discover the potential of this new form of mobility."

The Japanese automaker has long experience of electrical power – its first model, the Tama, was introduced in 1947.

From 2020 to 2025, there will come a real transition period on the path to zero emissions, but during this phase, according to Saikawa, no one will be able to predict what will happen in the marketplace.

Saikawa's electrification plan for Nissan provides for a two-way split in the type of power unit: the first dedicated to the development of 100 per cent electric or 'pure EV' cars and the second offering 'e-Power' technology, which is not a traditional type of hybrid or plug-in, but can be classified as a new form of hybrid system.

In conventional hybrid systems, a low-power electric motor is coupled to a petrol engine that drives the wheels when the battery is drained or when the vehicle is travelling at high speeds. In the e-Power system, the combustion engine is not linked to the wheels because its function is solely to charge the battery. Therefore, unlike a totally electric vehicle, the electricity comes predominantly from an internal combustion engine.

Nissan launched the second-generation Leaf this year at a time when many car makers are just venturing into the electric car market.

Nissan is a pioneer of zero-emissions cars, given that its first electrical car was produced in 1947. It was called the Tama and was fitted with an electric motor putting out 3.3kW (4.5 CV) powered by a 40V battery. The Leaf, the first mass-production electric car of the modern era, was launched in 2010 and has sold around 300,000 units globally, a figure that's allowed people to get used to this new type of mobility in a natural way.

This year saw the arrival of the second-generation Leaf, changed both functionally and aesthetically thanks to a more attractive design and a stated range of 400 kilometres.

"At a time when the world is extremely interested in electrical mobility and sustainability, we have already launched the second-generation Leaf," said Saikawa at the car's debut in Japan. "This car has everything required to over time become the reference point for Nissan, representing our brand's highest level of technology. We have been able to increase its range by 40 per cent because we really want people to embrace the world of electric mobility without any fear of its limits, or range anxiety."

Indeed the latest generation of Nissan's flagship zero-emissions car is a manifesto for the company's 'Intelligent Mobility' plan, a programme created with the aim of taking the Japanese marque into the future.

"The future doesn't just mean electrification, sustainability and zero emissions," concludes Saikawa, "but also connected cars, driver assistance systems that reduce or remove the risk of accidents for humans, and self-driven cars." ◂

06

Riding head first towards safety

MotoGP championship leader and FIA #3500LIVES campaign ambassador *Marc Márquez* is prepared to push to the limit in pursuit of a fifth world title, but away from the track the motorcycle racing star is determined to encourage riders in developing countries to wear a helmet

You were one of the first personalities to join the FIA's #3500LIVES campaign. Why do you believe a campaign such as this, which seeks to bring simple road safety messages to a global audience via billboard space, is important?

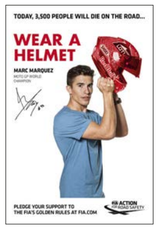
I think that public figures have to take advantage of their image to spread the word about good causes and there's no doubt that #3500LIVES is a great campaign which can create a very positive impact around the world. This is fundamental to catch the attention of people and plant a seed in their minds.

The message you are promoting is 'wear a helmet'. Before you became involved in the campaign were you aware of just how much of an issue the lack of helmet use is in emerging economies?

I was very aware of this, as I've seen it with my own eyes when I've been in Asia for MotoGP races and other events. The first time I saw people riding without a helmet it was a little bit shocking for me, because at home [in Spain] nobody rides a bike without a helmet. I hope this campaign will help to increase the number of people who ride their bikes with a helmet on.

You come from a dangerous sporting world but it's one where the risks are controlled and where safety is paramount. What do you say to motorcycle riders about taking risks on the road?

When us riders are at the circuit we feel very safe because we know that every detail is being controlled for professionals. On the open road, however, it's not like this. A little mistake can have a tragic end and that's why it's very important to ride carefully.



Marc Márquez is chasing a fifth MotoGP title with Honda this year, while also finding time to support the #3500LIVES campaign by promoting helmet use.

The quality of equipment at your disposal in MotoGP is obviously crucial too. Does that translate to the road? For example, should people be careful about the kind of safety gear they buy?

In MotoGP, we wear top-quality equipment to minimise the risks as much as possible and this is something that should be translated to the road to the greatest extent possible. Investing in equipment with standard marks and quality indicators is investing in your safety and your life, and there is nothing more valuable than that.

There's another aspect to motorcycle safety and that's awareness on the part of car and truck drivers that they are sharing the road with motorcyclists and bicycles. What would you say to drivers about paying attention to motorcyclists on the road and what would you say to motorcyclists to help them stay safer in traffic?

The most important thing is to understand that we all share the road and we need to respect each other. If you drive or ride recklessly you are not just putting yourself in danger, but other riders and drivers too.

Is there any campaign message you are also keen to promote or one that you've had personal experience of?

In Spain, from time to time, there are TV campaigns with different road safety messages. Some of them are very shocking because they explain real situations and accidents that happen on the road, which make you think about the importance of using seatbelts, driving sober and not using your phone while driving.

On two wheels you are enjoying a hugely successful 2018 season. Would you say you're at your best level ever this year, or is there more to come?

This year, I feel very good on the bike. We've worked hard with the factory and the team in order to have a complete package that makes us competitive on all the tracks, and this is most important. Of course, there are always things we want to improve, but we are happy with the situation at the moment.

There have been some spectacular moments in MotoGP this year with some incredible races, such as Assen, which you won after a six-way fight for the lead. How much are you enjoying the battles?

I love these kinds of races, as any other MotoGP fan does. I had so much fun in Assen, even if that wasn't the best type of race for me considering the situation in the championship. I hope we can provide more shows like that in the races to come.

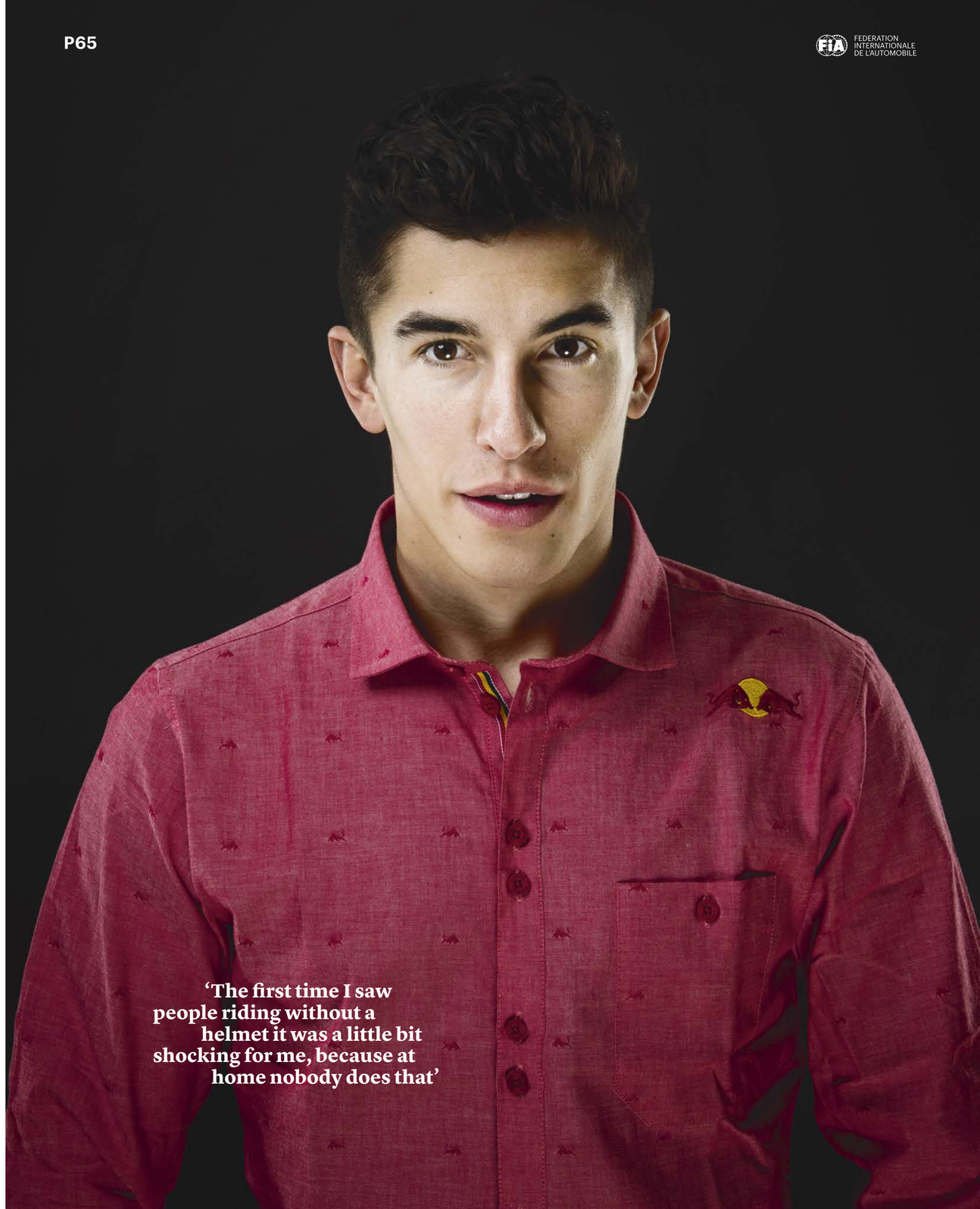
You recently drove a Formula 1 car at the Red Bull Ring in Austria. How did you find it? Did it make you think at all about switching to car racing at some point?

It was amazing and I'll never forget that experience. The thing that impressed me the most was the downforce in the fast corners – that was incredible and I enjoyed it a lot. For the moment, I don't think about switching because I am very happy in MotoGP, but of course I would like to drive an F1 car again in the future.

Finally, beyond always wearing a helmet, what are your tips for safe motorcycling on the road?

Always wear the right safety equipment, such as a jacket and gloves, and stay focused on the road so that you're able to react to any unforeseen incidents.

SCAN AND DISCOVER
Download the free Unitag app at unitag.io/app and scan the code to discover more about #3500LIVES



'The first time I saw people riding without a helmet it was a little bit shocking for me, because at home nobody does that'

The action is hotting up in world touring cars, where the FIA's decision to switch to TCR regulations is paying dividends.

06

Top-level touring car racing has been transformed – from a series of dwindling grids and 'formulaic' racing, into a vibrant privateer competition of close action and intense rivalry that has been embraced by car makers and participants alike. AUTO reveals how it happened...

Cup of plenty

TEXT / DAMIEN SMITH

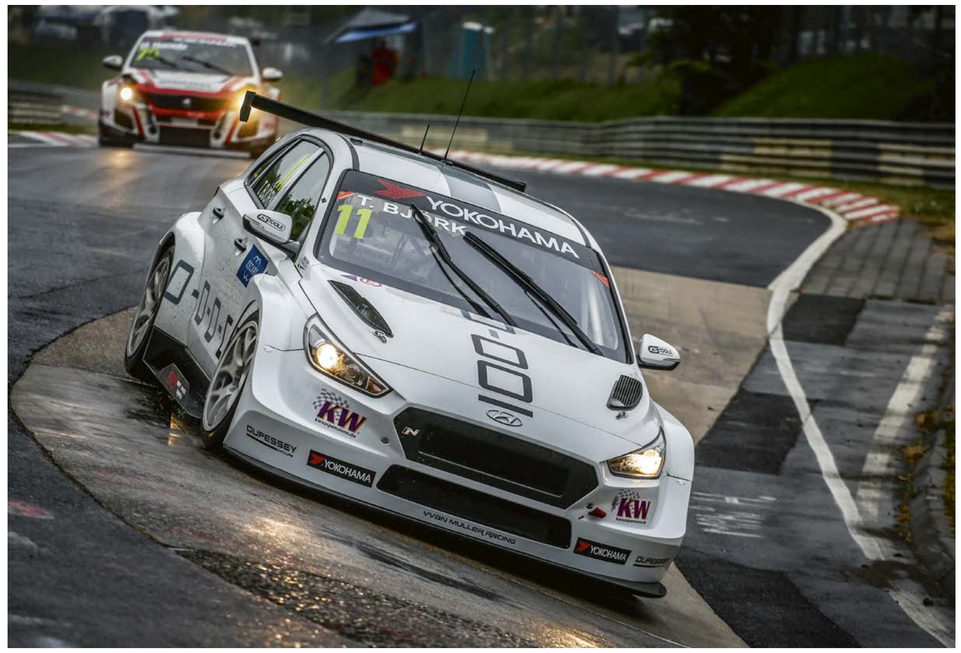
Eleven race winners in six different brands of car: that's the impressive tally after the first half-dozen weekends of the inaugural WTCR – FIA World Touring Car Cup. As those headline statistics suggest, the racing has been extremely competitive, and for the most part highly entertaining. Overtaking? Sure, at times more might have been preferable, but name a major four-wheeled international series for which that isn't so. And with a full grid packed with some of the best touring car talent in the world, including a clutch of genuine 'tin-top legends', it's no exaggeration to say the WTCR is flying high.

The series is a direct replacement for the FIA World Touring Car Championship, which came to an end last year after 13 seasons. The old TC1 regulations served the WTCC well, but their sophistication and relatively high-budget requirement turned off manufacturers. Grids had dwindled to the mid-teens by 2017 and the time was ripe for something new.

WTCR is something of a reboot, then, but there's continuation in the form of promotion, by the same events operation of the Eurosport TV channel that was responsible for WTCC. As the series acronym suggests, it runs to the TCR rules for front-wheel-drive, four or five-door saloons or hatchbacks using turbocharged production engines with a capacity of between 1750-2000cc and with a maximum power output of 350bhp.

There are no factory teams. Instead, manufacturers sell cars to customers – which explains the downgrading from world championship status to a 'World Cup'. ▸

Reigning champion Thed Björk celebrates a Race 3 victory in Portugal. The Swede currently stands as the series' last TC1 winner.



His Hyundai TCR doesn't have the power of his 2017 factory Volvo, but Björk appreciates the stronger competition in WTCR.

Triple British champion Gordon Shedden was drawn to WTCR as part of WRT's line-up (above) by the new series format.

That's a small price to pay for full grids, with a total of seven car brands represented in the WTCR, attracted by the lower running costs.

Reaction to the move among drivers is remarkably positive, although inevitably there are some reservations.

Thed Björk is the 2017 World Touring Car Champion, and therefore the last – at least for now. He admits WTCR is better than he feared, having won his title in a factory Volvo S60 Polestar TC1 thoroughbred. Now he drives a Hyundai i30 N TCR run by a new team, YMR, set up by four-time WTCC champion Yvan Muller. At the summer break, he was sixth in the drivers' standings with two race victories from the six three-races-a-weekend rounds.

"I had to adapt because I came from the faster car," says Björk, "and I was expecting it to be not so good. But WTCR is working nicely, with good fights and a big grid, which is what racing is all about."

"There are a lot more drivers this year," he says of a grid that has attracted 25 full-season entries. "At the top level of motor sport, if you are going to win the championship it is always going to be hard. This year, with so many more drivers, there is more competition because more people can win thanks to the TCR rules. So it's a good mix."

His note of doubt is that TCR was designed for national series. Having raced in and won the WTCC with a full-blown manufacturer squad, he misses that status and TC1-spec performance.

"My ambition is to defend my world title one day, that we can get a set of rules that can work for a world championship again," he says. "TCR rules are absolutely fantastic for national championships, but having driven in the WTCC I think performance needs to be... higher."

Compared to TC1, TCR cars were between five and seven seconds slower than their WTCC predecessors at the Portuguese Vila Real street track this year. That's significant for experienced drivers such as 2012 WTCC champion Rob Huff, who this year drives a Sébastien Loeb Racing Volkswagen Golf GTI TCR.

WRT sporting director and touring car veteran Pierre Dieudonné says WTCR has many good points, but warns against developing prototype racers.

"From a driver's point of view, my personal choice is to go faster, not slower," says Huff. "It's not ideal, but the racing is better. As a pure adrenaline rush the TC1 car was special and something we probably won't see again. But the racing was pretty formulaic. But in these it's much easier to overtake. It's a much more rounded championship.

"I've been in this paddock since 2005," he adds. "We've seen it go from 36-car fields down to 14 and come back to 27 where it is at the moment. From a spectator's point of view, what we have now is one of the best we've seen: lots of manufacturers involved, lots of teams, lots of drivers new and old. A lot of these younger guys would find it a lot harder getting into a TC1 car."

MEETING EXPECTATIONS

That mix of old hands and younger, fresh talent has been the main talking point of WTCR this year. By mid-season, Italian veteran Gabriele Tarquini headed the points – at 56 years old! – from fellow legend Muller, so experience counts for something.

But the big-name heroes, who have also included Fabrizio Giovanardi, Gianni Morbidelli, Tom Coronel, James Thompson, Björk and Huff, are being pushed all the way by a new generation. That list of 11 winners includes rising talent such as Norbert Michelisz, Yann Ehrlacher (Muller's nephew), Jean-Karl Vernay, Aurélien Comte and Esteban Guerrieri. All are potential champions at this level.

TCR cars have certainly made the series more accessible, both in terms of budget and performance. And without them, a man such as three-time British Touring Car Champion Gordon Shedden wouldn't have switched. The Scot was comfortable in his national series, but the reboot allowed him to achieve his ambition and widen his scope to race in a world series. At short notice, he quit the BTCC and joined WRT's Leopard and Lukoil-backed team of Audi RS 3 LMSs in the new series. Results by mid-season had been disappointing, but Shedden was revelling in the opportunity to race on a bigger stage.

"I probably could have stayed in the BTCC for as long as I wanted, but I'd won it three times and I had nothing else to prove there," he says. "I wanted to do the world championship, but there wasn't the opportunity. You want to do it on as much of a level playing field as possible. With TC1 regulations, unless you were in one team it was very difficult to come through. This was a halfway house: some of the drivers from the world championship have experience of the tracks and the tyre, then you have a lot of drivers from the old TCR International series who know the cars, so I'm still on the backfoot. But it was as close to a level playing field as I was going to get."

Even from BTCC-spec touring cars, TCR is less sophisticated. "They are a very different animal," says Shedden. "But you know what? Bang for your buck, it's impressive. TCR is a worldwide formula the manufacturers are interested in and WTCR has all the hallmarks of a fantastic series. People talk about the golden era of super touring in the 1990s, but you couldn't buy one of those cars. With €130,000 you can buy one of these. It's the most competitive touring car championship there has ever been. You walk up and down the pitlane and see who is here, and all are genuinely in with a chance of winning. It's great."

Shedden's sporting director at WRT has the perspective of nearly 50 years in motor racing, as both a driver and team manager. Belgian hero Pierre Dieudonné shares his driver's enthusiasm, but he knows from past experience how the bubble can burst.

"There are a lot of good points," he says. "For me, it started on the wrong foot with late planning and of course at the start the Balance of Performance [the method of equalisation that allows different car concepts to compete on a level playing field] needed work. Also it's based on production cars and some people are starting to build what I call 'prototype' TCRs. For me, that is dangerous. Without management, budgets go up and you are not in the original idea of TCR anymore."

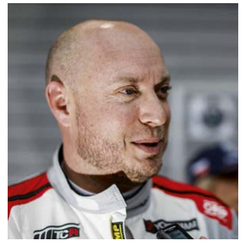
From an FIA standpoint, expectations have been met, as Frédéric Bertrand, the governing body's Circuit Racing Championships Department Director confirms. "The grid is full and the field is one of quality. We are really proud the competitors trusted the FIA and Eurosport. We wanted a real show and we have established a full world championship team, race director, deputy race director, stewards, technical delegates and a lot of work has been done with TCR to understand the cars and the regulations. It's a big success."

As for the future, WTCR might prove to be an interim solution before new regulations can be drawn up that will allow a full revival of WTCC. But consensus on how this can be achieved – to attract manufacturers to build cars and run teams, but protect the interests of customer entries – is not the work of the moment.

As it stands, the variety and quality of the WTCR grid is more than adequate. In fact, on the evidence of 2018, one might argue that little needs to change at all. ◂

'You walk up and down the pitlane and see who is here, and all are genuinely in with a chance of winning. It's great'

Rob Huff, the 2012 WTCC champion who drives for Sébastien Loeb Racing (above), has seen grids rise and fall in his time – and feels the series is currently riding high.



06

STEERING TOMORROW'S MOBILITY

Earlier this year, the European Commission outlined the final phase of its plans to modernise the bloc's transport system. Here, Commissioner for Transport *Violeta Bulc* details the scope of the proposals and how the initiative will lead to safer, cleaner and more sustainable mobility

TEXT /
JUSTIN HYNES

In September 2017, European Commission President Jean-Claude Juncker outlined the goal of the EU becoming a world leader in innovation, digitisation and decarbonisation in mobility. The third phase of this plan was published in May. Can you explain the background behind the 'Europe on the Move' plans and what they hope to deliver?

With our Mobility Package, we are setting the framework for modernising Europe's road sector. Our aim is to allow all Europeans to benefit from safer traffic, less polluting vehicles and more advanced technological solutions.
The background to these proposals is that while the EU has the safest streets in the world, over 25,000 people still lost their lives on EU roads in 2017; another 135,000 were seriously injured. This must change.
We propose that new vehicle models are equipped with sophisticated safety features, such as advanced emergency braking, lane-keeping assist systems or, in the case of lorries, pedestrian and cyclist detection systems.
In addition, we are helping member states to systematically identify dangerous road sections and to better target investment. These two measures could save up to 10,500 lives and avoid close to 60,000 injuries from 2020 to 2030, thereby contributing to the EU's long-term goal of moving close to zero fatalities and serious injuries by 2050, the Vision Zero plan.
Europe on the Move is helping Europe lead globally as we move towards fully automated and connected mobility systems. Transport will be safer, cleaner, cheaper and more accessible to the elderly, young people, and to people with reduced mobility. The Commission is also proposing to establish a fully digital environment for information exchange in freight transport. This will cut red tape and facilitate information flows for logistics operations.
Last but not least, we are putting all these proposals forward, aware that we must also deliver on our goal to reduce climate change. Our initiatives on CO2 standards for heavy duty vehicles, on their aerodynamic performance, on tyre labelling and on a common methodology for comparing fuel prices, will all help reduce greenhouse gas emissions from transport.

Can you explain the steps to be taken on safer mobility and how will they impact positively on the quality of life of EU citizens?

We have made great progress in reducing road deaths, but in recent years, there has been stagnation. We have to push harder in areas where real progress can be made.
In our strategic action plan on road safety, we combine more ambitious legislation and strengthened EU funding support with closer co-operation with all stakeholders.
We are adopting a 'safe system approach', which addresses infrastructure, vehicles, and user behaviour. Concretely, two new proposals are on the table: on including the latest safety technologies in all new cars, and on improving the safety of road infrastructure. We want to ensure that the results of road safety inspections get followed up on, and we want to extend their scope from the TEN-T network (the Trans-European Transport Network of roads, railways, inland waterways, shipping routes, ports, airports and rail-road terminals), to which existing EU legislation applies, to all primary roads – where many more accidents occur.

How does the Transport Commission propose to further road safety innovation, either by mandating safety technologies or incentivising their future development?

Road safety technology is a very innovative field. There are three main fields of innovation: business models (Mobility as a Service); technology; and the use of mobility (city planning, smart and inclusive city mobility, smart villages), efficiency, and multimodality.
We are making a number of safety features mandatory to ensure that they are not only fitted in the most expensive cars, and to make sure that we protect vulnerable road users such as pedestrians and cyclists.
Our strategic action plan on road safety also maps out where we see the greatest need for more research and development, for example to prepare a smooth transition to higher levels of automation in road transport.

With regard to infrastructural changes, one of the key statistics is that 8 per cent of fatalities occur on motorways, while 39 per cent happen on primary/main roads. How does the commission plan to address that via the new policies?

This is indeed striking. Motorways are the safest roads by design. If we want to make a real difference, we need to focus on primary roads, especially those with no separation between two-way traffic that carry high volumes of traffic travelling at different speeds. This is why we have proposed to make safety procedures like audits and inspections mandatory for primary roads in addition to the TEN-T network, to which these rules already apply and which mainly comprises motorways.

Part of the strategy is a vision for automated mobility. The goals outlined for the 2020s include automated driving on motorways in road trains and at low speed in cities for service vehicles. Is that the extent of automation you feel we might sensibly reach over the next decade?

Automation has already been introduced successfully in campuses, at airports and logistics centres. Service sectors will be the frontrunners.
Our strategy is based on a new level of co-operation between road users, which could offer enormous benefits to users, industry and the mobility system as a whole. In the coming years, automated vehicles will progressively become available – managing increasingly complex situations without any supervision from a human driver.

Beyond 2030, the proposals target the development of full automation. Can you explain how the EU views that in terms of safety, standardisation of vehicles, communications systems, and infrastructure? For example, the creation of safe automated vehicles that speak the same language as others on the road.

I am glad you mention the need for vehicles to speak the same language, as we will adopt a Delegated Act on Cooperative Intelligent Transport Systems (C-ITS) this year.
The aim is to make sure all vehicles will be able to speak to each other – V2V (vehicle-to-vehicle communication), as well as to infrastructure (V2I, vehicle to infrastructure communication). This will ensure interoperability (making sure everybody is connected to everybody), backward compatibility (making sure that everybody remains connected to everybody) and continuity of services (making sure everybody benefits from the same road safety and traffic efficiency services everywhere).
Today C-ITS is about creating awareness and sharing information in real time, but soon C-ITS will begin to gradually integrate automation.

'Over 25,000 people lost their lives on EU roads in 2017; another 135,000 were seriously injured. This must change'

Ultimately, vehicles will co-ordinate all manoeuvres and we hope to achieve Vision Zero, meaning no road fatalities.
At the same time, we expect infrastructure to play an important role in the safe introduction of automated vehicles. For a long time we will have mixed traffic, though increasingly with automated vehicles alongside 'traditional' vehicles and other road users.
Therefore, it will be crucial that all vehicled can interact safely, via I2I (infrastructure to infrastructure communication).
We continue to engage in discussions on how to best support this interaction and foster investments in smart infrastructure, which has the potential not only to contribute to safety while reducing congestion, but also to cut costs.
We need to steer the measures we are taking now in a way that ensures they prepare the ground for higher levels of automation. For example, we are now laying the foundations in our infrastructure proposal to ensure that road markings and road signs can be read by humans and vehicles.

EU Commissioner for Transport Violeta Bulc believes the latest 'Europe on the Move' proposals will lead to safer traffic and less polluting vehicles.

In clean mobility, two proposals stand out: a target of transport companies saving €25,000 over five years thanks to lower fuel consumption and new large trucks having to reduce emissions on average by 15% in 2025 and at least 30% in 2030 compared to 2019. How will these be achieved?

Small and medium-sized enterprises using more efficient vans will benefit from fuel savings. As a result of the proposal setting new CO2 emission standards, additional net savings for an average van bought in 2025 are expected to reach up to €2,300, and up to about €3,800 for vans bought in 2030, over a lifetime of 15 years.
New large lorries have to reduce emissions on average by 15% in 2025 and at least 30 per cent by 2030 compared to 2019 levels. This can be achieved mainly through innovation.
There are virtually no large, zero-emission lorries on European roads today. On the other hand, almost all manufacturers have announced plans for zero emission vehicles. The proposal includes a mechanism to incentivise the uptake of zero- and low-emission vehicles, in a technology-neutral way.
This system of credits will reward manufacturers who invest more in innovative technologies, while preserving the environmental integrity of the CO2 targets. It also includes zero-emission buses, which are needed for cleaner air in cities.
The emission reduction targets proposed by the Commission are based on sound analysis and broad stakeholder involvement, including from NGOs and industry. The European Parliament's Environmental Committee backs stricter reduction targets (a 45 per cent cut by 2030), while industry would like to limit the reduction to 20 per cent.

How have mobility stakeholders, such as the FIA and its President Jean Todt, helped inform or facilitate the development of the goals for safe, clean and accessible transport goals outlined in the latest proposals?

We all gained a lot from the active role of Jean Todt. With his appointment as the UN Special Envoy for Road safety, I truly believe that the road safety cause has gained worldwide prominence and recognition. He is a stellar supporter of road safety and I very much appreciate his tireless work. We are in regular contact and I valued his contribution to the development of our latest package.
We co-operated very closely with a wide array of stakeholders when preparing the Road Safety Policy Framework 2021-2030 and the strategic action plan. This meant that we received incredible input directly from those dealing with road safety issues on a day-to-day basis. We also held a stakeholder conference and executive symposium; the FIA participated very actively in both. Together, we can make a big difference.

06

PIONEERING SPIRIT

In a career stretching back almost 70 years, *Dr Jean Jacques Issermann* has championed a range of medical advances in motor sport. And as he continues to set the standard for driver extrication procedures – at 95 years of age – there's no sign of him stopping yet

TEXT
/
DANIEL ORTELLI

Jean Jacques Issermann was born in Paris and trained as a doctor, but his first job, as a village GP, involved him relocating to a small town near Le Mans. The year was 1949, the first year that the world's greatest endurance race was run following the end of the Second World War. It was the year of Luigi Chinetti and Ferrari. "I heard some noise coming from cars," recalls Issermann with a grin.

At the following year's 24-hour race he was trackside, a young doctor willing to be on duty through the night, somewhere between Arnage and Mulsanne. Issermann was also present in 1955, when motor sport experienced what remains its greatest tragedy. A few hours into the race Mike Hawthorn made a late dive towards the pits causing the slower Lance Macklin to swerve. Behind him, Pierre Levegh had no time to react and hit the back of Macklin's car. His Mercedes crashed and exploded, with lethal debris scything through the crowds. In all, 83 spectators were killed as well as Levegh and almost 180 were injured. Issermann was posted too far away to see anything, but heard about the tragedy thanks to the official announcer, Georges Briquet.

Seven years after his arrival at La Sarthe, Issermann became a GP in Chevilly-Larue, south-west of Paris, not far from another famous race circuit: Montlhéry. The young doctor decided it was about time he started driving properly, taking courses at the local driving school and beginning to compete, in addition to returning to Le Mans every year as a medic.

In 1952, the French Federation of Automobile Sport (FFSA) was founded and Issermann made sure that newly-elected president Jean Lucas understood the need to "create medical structures that did not exist", starting with dedicated emergency and 'reanimation' teams at French tracks.

The demand led to Issermann extending his visits to circuits at which he raced with a different purpose – seeking out medical facilities and building capacity. He managed to convince the Citroën Total Foundation to finance an innovative emergency vehicle to attend major motor racing events in France.

By the later 1960s he was fixture on the French motor racing scene. Issermann was at Circuit Paul Ricard for the inauguration in 1970, and made history in 1972 at the French Grand Prix at Charade when he asked racer Vic Elford to drive a Porsche during Friday practice in tandem with the single-seaters. Two days later, he did it again at the start of the Formula 3 race, but with the car at the back of the pack. A crash occurred on the opening lap and Issermann was able to respond rapidly. The medical car was born.

MEDICAL ADVANCES

From then on Issermann pressed rigorously for advancements in intervention techniques and medical infrastructure in motor sport. He gained the support of FFSA president, Bernard Consten, and even asked top F1 drivers Jean-Pierre Jabouille and Patrick Depailler to drive medical cars on a number of occasions.

He followed Jean-Marie Balestre from the FFSA to the FISA and then the FIA, where a Medical Commission was created in which he worked closely with the late Dr Sid Watkins.

In 1989, French driver Philippe Streiff was involved in a huge crash at the Brazilian Grand Prix. Within hours, Issermann received a phone call from Balestre.

"He called me at three in the morning to say that if I could not find a solution within 48 hours, he would sack me. Luckily, I already had a few ideas, thanks to various experiences in the UK and Hungary. I also remember getting a complete rescue unit from a cupboard at Birmingham Hospital on the occasion of an F3000 race. It had been created for victims of earthquakes and obviously they'd never used it. So I borrowed it!"

At the start of 1990, the FIA World Council for Motor Sport ruled that dedicated extrication teams must be present at every track where an FIA-sanctioned world championship race was being held, and training soon started at various French circuits (Le Mans, Magny-Cours and Le Castellet) supervised by Issermann and Professor Gérard Saillant, President of the FIA Medical Commission. Over the past 28 years, dozens of extrication teams from all corners of the motor sport world have been trained. Race stewards and doctors mostly, but also members of well-established racing teams from every discipline.

Earlier this year, a significant extrication seminar took place at Le Mans, organised by the FFSA and ACO with a wide array of beautiful racing cars: a Toyota TS030 Hybrid offered by the Japanese giant, two LMP2 prototypes, a Chevrolet Corvette, three GT3 Porsches, two GP2 single-seaters, two F4s and one Formula E. Some were equipped with a Formula 1-type halo safety device. Extrication teams from across Europe attended as well as F1 and endurance race crews, with observers from Baku and Luxembourg.

Medical teams are certified for just two years, because "updating the extrication process on a regular basis is crucial. Automobile technology changes fast," Professor Saillant underlines. "We need competent and well-trained teams because the first gestures [of the emergency team on the bodies of crashed drivers] are crucial."

The extrication seminar at Le Mans this summer involved a host of cars and medical teams.

Teams travelled from around the world for the seminar, which Jean Jacques Issermann attended.

'I remember getting a rescue unit from a cupboard at Birmingham Hospital. It had been created for earthquake victims and they'd never used it. So I borrowed it!'

Dr Issermann has spent the last half-century working to improve medical safety and equipment at race tracks.

At the end of July, a new extrication training centre was opened at Circuit de Spa-Francorchamps in Belgium, on the eve of another famous 24-hour race – the flagship event of the Blancpain GT Series. Issermann was there and was honoured for his half-century of work to prove that extrication by well-trained medical teams armed with the right knowledge and equipment is key to saving drivers' lives. "At Paul Ricard in June they all thanked me, kissed me – even [F1 Race Director] Charlie Whiting," he laughs. It's only fitting.

07

‘Driving... it was all I wanted to do’

TEXT / DAVID EVANS

The first man to win back-to-back WRC titles, the first driver to reach four titles... in an era of Finnish rallying giants, *Juha Kankkunen* towered above them all

It’s Autumn, 1989 and a private jet has just landed at Tikkakoski airport. An unsuspecting Finnish cabbie is about to be given a great story. Two gentlemen emerge into the Jyväskylä morning air looking a little lost. They lean into his window and enquire, with heavy Italian accents, about a local.

The driver’s answer is yes. Yes, he knows where Juha Kankkunen lives. And yes, he can take them there. That’s how Lancia team principal Claudio Lombardi came to be knocking on Kankkunen’s front door in time for morning coffee and an offer to put him back in a Delta Intergrale.

Kankkunen switched teams eight times in his time at the top of the World Rally Championship, a number almost unheard of among the sport’s frontline professionals these days. In doing so, he won 23 WRC rallies and four drivers’ titles. The first driver to win back-to-back titles, he was also the first to wear the crown three times. And then four. He remains the only driver ever to take the title with three different manufacturers. ▸

Kankkunen’s blend of mechanical sympathy and speed earned him a Safari Rally win at the first attempt in 1985 with Fred Gallagher and a Toyota Celica Twin Cam Turbo.

'It was a big decision to go to Peugeot. I had friends at Toyota, but you needed a four-wheel-drive car to win'

Success with Peugeot and the 205 T16 came quickly in '86, first in Sweden and then on the Acropolis (left). A third win followed in New Zealand.

Kankkunen was world champion for the first time with Peugeot in 1986, but only after having points reinstated after initially being disqualified in Sanremo.

At a time when Finland was knocking out heroes of the stage at a frightening rate, Kankkunen stood above them all. At Britain's round of the World Rally Championship in October, the 59-year-old will be honoured as an official Wales Rally GB Legend. Such status is richly deserved.

But it was always coming. Born into a farming family in the centre of Finland, Kankkunen's father Pekka was a keen ice racer and some of Juha's earliest memories are of watching his dad slide some flavour of Ford across a frozen lake. Standing next to him, but with their eyes firmly fixed on a Porsche, were the Toivonen boys. Henri and Harri were watching papa Pauli. All were destined for rallying's spotlight.

By the age of 11, Kankkunen was competing in ice races himself. At 12, he was wining them. And beating his father in his mother's Ford Anglia.

"Driving... it was all I wanted to do," smiles Kankkunen. "At school there was some football, but really it was anything with an engine – tractors, motorcross bikes, anything."

NATIONAL SERVICE

Passing his driving test was no bother for Kankkunen. He knew the instructor; he'd beaten him in a recent ice race. But competing was tricky – you weren't allowed to do that until you'd held your licence for six months in Finland. So, at just over 18 years of age, Kankkunen crossed the border to Sweden to make his rallying debut there. He won his class and guided his Mk1 Escort to ninth overall on the Eskilstuna Rally in 1978.

Kankkunen was on his way. A year later, and with numerous Finnish Junior wins under his belt, he made his first start on the 1000 Lakes.

"I dreamed of this rally," he says. "From when I was a boy, I was thinking all the time to this great [event] where so many Finnish drivers had won before."

Backing from Teboil helped get a Group 1 Escort RS2000 on the road and Juha was straight on the pace. He rolled, but carried on and was classified an impressive 14th.

Crucially, Kankkunen caught the eye of a fellow Finnish driver by the name of Timo Jouhki. Timo's father had helped Hannu Mikkola earlier in his career and he spied an opportunity to further the family influence over Finnish rallying.

Before that, frustration. The Finnish Rally Championship was nice, but the communications department of the Finnish Air Force had other plans for Finland's next big thing. ▸

Left: a second world title followed in '87 with Lancia and the Delta, including victory on the final round in Great Britain.

Right: Back with Toyota in '88, WRC success was in short supply, but Juha made up for that with victory on the gruelling Paris-Dakar for Peugeot.

The world waited. And when he emerged from national service, Kankkunen got the keys to Jouhki's Opel Manta. Engine failure and retirement spoiled his second attempt at the 1000 Lakes in 1982. Soon after came more promise on his overseas WRC debut at the RAC Rally. Leading his class by 20 minutes, the Manta let him down again.

Behind the scenes in Britain, Timo Mäkinen had pointed Toyota team principal Ove Andersson in Kankkunen's direction. The Swede was in need of drivers and Kankkunen was on the up.

Juha strengthened his case when he won his class by an hour on a typically wintry Boucles de Spa, placing the Opel sixth overall on a Belgian finish board packed with top-drawer manufacturer cars.

Andersson was convinced and offered him a deal to drive a Toyota Celica 2000GT on selected Finnish rallies. Further convinced, he empowered Kankkunen with a Celica Twin Cam Turbo. And sent him to Africa to test for the Ivory Coast Rally.

"It was incredible," says Kankkunen. "I went from not having much to flying to Africa to test this car. And then I came home to drive it at 1000 Lakes."

A factory Twin Cam Turbo was a completely different proposition to anything he'd driven before. He didn't put a wheel out of place and delivered a stunning sixth place, consistently outshining team-mate Björn Waldegård. Forget the rest of the year, Andersson wanted a longer-term deal. Kankkunen had arrived.

These were exciting times for Toyota. A four-wheel-drive Group B car was coming, but for now the rear-drive TCT would fight the good fight against rivals with total traction. On European events, it was almost impossible for the Toyota to win. But Africa was another matter. On the Safari and Ivory Coast rallies, a driver needed almost as much mechanical sympathy as speed. Kankkunen had both and won the Safari at his first attempt. His supreme ability in such conditions was backed up three years later when he won the Paris-Dakar on his marathon rally debut (admittedly, only after team-mate Ari Vatanen's car was stolen).

'It was incredible. I went from not having much to flying to Africa to test the Toyota. And then home to drive it at the 1000 Lakes'

A return to Lancia for '91 netted five wins – including another Safari success – and a third world crown.

Much as he loved Africa, it wasn't enough. And Toyota's new car couldn't come soon enough.

Sitting spinning his rear wheels on a particularly icy uphill section of an RAC stage, Kankkunen began to seriously consider the offer that then-Peugeot team principal Jean Todt had made him for 1986.

"It was [a] big decision, not an easy one," says Kankkunen. "I felt I had friends with Toyota, they helped me so much and gave me the chance. But you could see, you needed a four-wheel-drive car to win."

Stepping up from the Celica to Peugeot's 205 T16 E2 was a real eye-opener in terms of pace, power and potential. But Kankkunen had mastered the demands by round two, winning in Sweden and moving ahead in the drivers' championship. ▸

Kankkunen became the first driver to win four WRC titles after returning to Toyota for '93, and remains the only driver to finish on top with three different manufacturers.

The 1986 WRC season was one of the most politically charged and controversial in the series' history. It was also the season Juha learned about team orders. Chasing a maiden 1000 Lakes win, he was told to hold station behind team-mate Timo Salonen after their nearest rival, Lancia's Markku Alén, crashed. Kankkunen was furious. But there was more to come. Disqualified from Sanremo (along with all the Peugeots for running allegedly illegal bodywork), Kankkunen rolled to third place on the RAC and went to the final round in America one point behind Alén.

When a battery change on his 205 took longer than expected, Juha was left with a minute penalty and couldn't catch his countryman and rival. Alén won the Olympus Rally and the title. The bang with which Group B had just departed got even louder 11 days later when a specially convened FISA meeting overturned the Sanremo decision and handed Peugeot and Kankkunen their points from Italy. Juha was champion.

"We were there for the meeting," says Kankkunen, "and then we were told we had won the championship and we had to go to the prize-giving. I had nothing to wear... I had to go shopping in Paris for the clothes.

"It was difficult with Markku. Before the [Olympus] rally, we had been normal. For us it was just another rally, everything was good. After that, I was going to Lancia. I was going to be his team-mate..."

His team-mate was the least of his worries when he drove a Group A Delta for the first time. Famously at that first test, Alén said: "This is a very funny car to drive... now where is rally car?" Another colleague likened the move from Group B to Group A as: "Stepping off a rocket and onto a bicycle."

Kankkunen says: "It was not so nice to drive these cars. After all the power we had, suddenly there was nothing."

And immediately Kankkunen was hit with more team orders, instructed to slow down on the 1987 Monte to let Miki Biasion – the Italian in the Italian team – win. "I remember wondering if I would ever be allowed to win," he says.

He would. He won twice that season to take a second drivers' title. But he'd had enough of the politics. He was heading back to his first family, back to Toyota and its soon-to-come Celica GT-4.

HOME SWEET HOME

The Celica was a disaster. Kankkunen retired from all five starts in 1988 and won only once in '89. "The car had come too soon," he says. "Then Lancia came back..." via the Tikkakoski taxi driver.

The headline of his second stint with the Italians was the 1991 world title. And there was no sweeter moment that year than the first of his three home wins.

Celebrating the second of three precious wins on home soil with Denis Giraudet (above) after 1000 Lakes success with Toyota (left) in '93.

'I said to myself, I will be fastest in Ouninpohja and I will win this rally. I did both. It was a very sweet moment'

"I thought I was never going to win that rally," says Kankkunen. "That year I started more slowly, not full speed. But then the propshaft broke in Myhinpää and I thought: 'It's happening again...'

"Carlos [Sainz] was driving quickly, but I started to catch him and we had a big fight on the roads around Jämsä. Carlos went off the road and we caught his dust. [Co-driver] Juha [Piironen] told me the game was up, the rally was ours. When I got to the finish, the feeling was incredible. It was like the feeling from that first win on the Safari. That was the 11th time I started my home rally, but finally I had done it."

Two years later, back at Toyota for a third and final stint, he did it again. As in 1991, he took four more wins in the season and collected the title, this time with a rally to spare.

In 1999, two decades on from his first rally, Kankkunen was still winning with success in a Subaru Impreza WRC in Argentina and Finland.

"A lot of people were asking around that time if I would retire," says Kankkunen. "That was the best way to answer. I was testing in Finland in the summer and the car felt so good. I said to myself, I will be fastest in Ouninpohja and I will win this rally. I did both. It was a very sweet moment."

And, with the passing years, that last champagne moment in Jyväskylä grows sweeter still. A lot like the Kankkunen legend. ◂

Kankkunen's last competitive hurrah on Rally Finland was in 2010, when he finished eighth in a Ford Focus RS WRC '08.

The brainchild of the visionary *Sir Alec Issigonis*, the Mini revolutionised what a road car could be – and in the hands of brilliant race engineer *John Cooper* it also redefined what was possible on the world's rally stages

07

THE TINY GIANT

TEXT
/
JUSTIN HYNES

1960 Morris Mini Minor. The Mini was unveiled to the public on August 26, 1959. Some 2,000 cars had already been sent abroad and were displayed that day in almost 100 countries.

The hardest quality to bring to any field is simplicity. As any system develops it's not elegance and efficiency that flourish but complexity. Design is elaborated upon, reimagined and eventually, almost organically, branches away from purity. To return to the source, to reveal the essential, often takes visionary skill.

In the automotive world of the 1950s, an age rife with chrome-clad, rocket-age flourishes born in the USA and filtered through design across the industry, the essential was hard to find. One man, though, put simplicity at the core of his vision for mobility – Briton Sir Alec Issigonis.

"I've always felt that stylists such as you have in America are ashamed of a car and are preoccupied with making it look like something else, like a submarine or an airship," said the now-celebrated designer. '"As an engineer, I revolt against this."

Born in Smyrna in the Ottoman Empire (now Izmir, Turkey), Issigonis along with his family left Turkey for Britain in 1922. From an early age Issigonis dreamt of becoming an automobile engineer but after studying engineering at Battersea Polytechnic his first job, in 1928, was in the design office of Gillett, an engineering firm in London. However, in 1934, Issigonis's dream was realised when he was invited to join the drawing ▸

office at the Humber car company in Coventry. By the age of 30 he was working for the Morris Engineering Department and celebrated his first success with the construction of the much-loved Morris Minor.

When Morris and Austin merged to form the British Motor Corporation in 1952, Issigonis decided to leave the company. He moved on to Alvis, where he worked on the development of a luxury saloon, but the project was discontinued for cost reasons and Issigonis returned to BMC. It was 1956 and events in the wider world were soon to catalyse in the creation of a legend.

CRISIS SPURS CREATIVITY

During the Second World War, Britain, along with France, was in control of the Suez Canal, which served as an important source of oil. But this changed in July 1956 when Egyptian President Gamal Abdel Nasser nationalised the Suez Canal company.

Britain and France reacted to the loss of control over the majority of Europe's oil supply by joining Israel in an invasion of Egypt in an attempt to remove Nasser from power and regain control of the canal.

The Suez Crisis resulted in Egypt imposing an oil embargo against the invading nations. Fuel prices skyrocketed and in Britain fuel rationing was introduced.

As a result of the scarcity, sales of so-called 'bubble cars', tiny but fuel-efficient vehicles such as those of BMW Isetta, took off. Unaccommodating (they could only seat two), uncomfortable, underpowered and unsafe they were a necessary evil, but for BMC a growth sector that required a response.

BMC President Leonard Lord instructed Issigonis to design a car that would be compact and economical, yet be able to seat four people comfortably. For Issigonis it was a chance to prove himself and he ingeniously turned a crisis into opportunity.

He addressed saving fuel as both an engineering and design challenge, which he solved through what became a trademark of Mini: the creative use of space.

The greatest challenge Issigonis faced was finding a way to comfortably seat four people in a car that Lord mandated could be no greater than 10 feet long, but which had to contain a passenger compartment at least six feet long. Issigonis' solution would revolutionise car design.

The majority of automobiles at the time were rear-wheel drive and featured a longitudinally-mounted engine and transmission at the front of the vehicle. It was an arrangement that required a lot of space, too much to match Issigonis' brief – and so he simply redrew the arrangement, building a front-wheel-drive car and turning the powerplant through 90 degrees to sit across the engine bay.

To reduce dimensions further and create more internal space the Mini team developed a new transmission that sat underneath the engine and which used the same oil system, thus saving the precious fluid. The new arrangement was so smart and compact that the Mini's entire drivetrain occupied a mere two feet of the 10-foot long car. Eighty per cent of the car's remaining length could now accommodate driver, passengers and luggage.

And in balancing that equation, Issigonis and his team also triumphed. Traditional body designs were a 'three-box' affair comprising engine bay, passenger compartment and luggage space. The Mini team could not afford to sacrifice internal space for a trunk and, in order to create space, utilised every inch of spare volume.

The still largely stock interior of the Mini Cooper S that took Hopkirk and Ron Crellin to victory at the 1966 Austria Rallye.

The boot hinge was positioned at the bottom of the car so the trunk door would lie flat and large objects could be transported on a platform. Sliding windows were used so that the doors could feature large bins for storage instead of winding mechanisms. The simpler doors saved weight, too, improving efficiency and performance.

And most importantly, he convinced Dunlop to supply tyres for 10-inch wheels that meant there was minimal intrusion into the passenger compartment by the wheel wells.

The Mini team even turned their space-saving obsession to the suspension system, with Dr Alex Moulton designing compact rubber cones for use at each wheel instead of conventional coil or leaf springs. The Mini's rubber cone suspension implemented a rising variable spring rate that changed under different compression and vehicle loads. The combination of the cones at each corner and the variable spring rate meant the little car adapted to changes in weight with incredible agility, handling characteristics that would come into play soon after its 1959 launch.

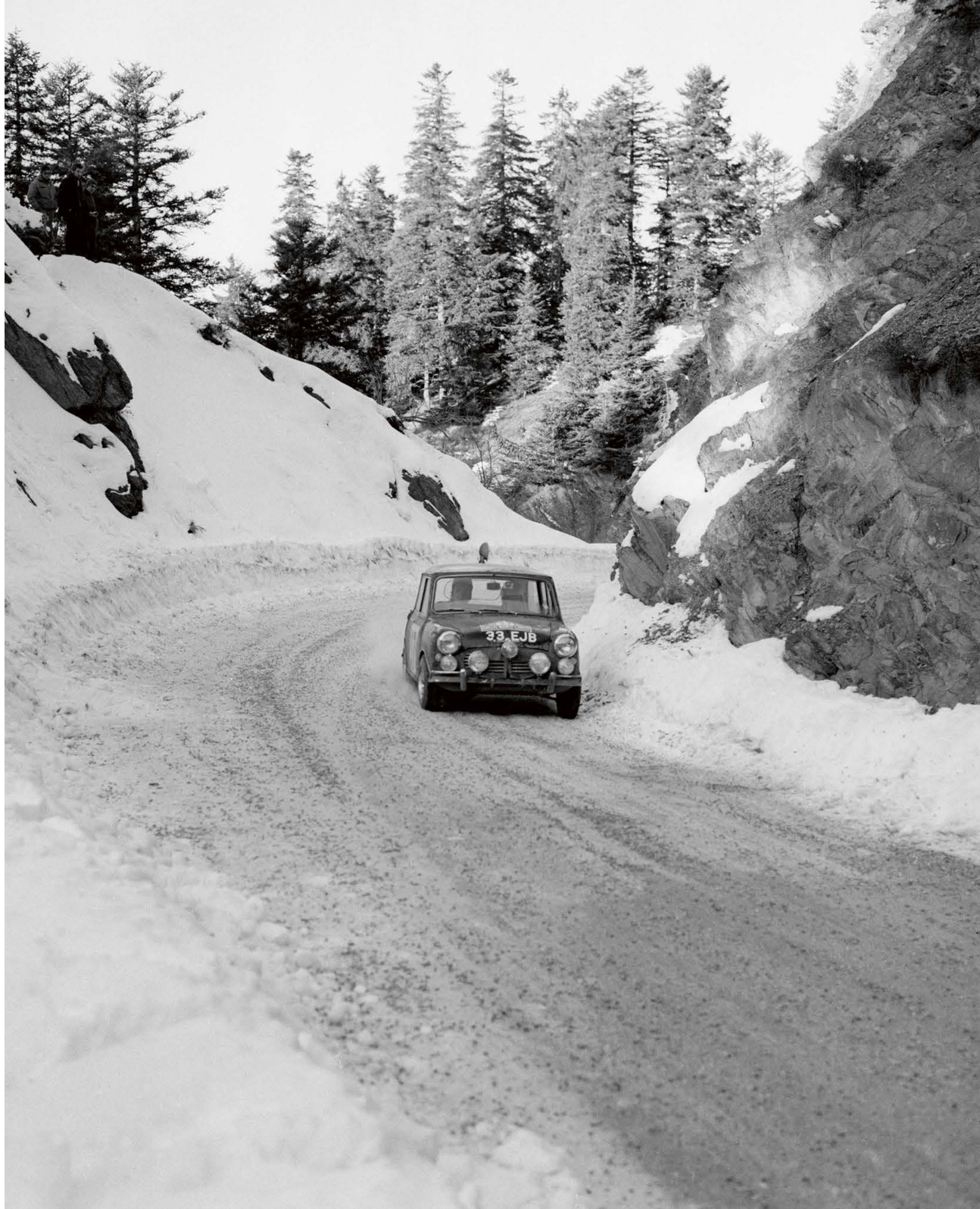
When it was put on sale in 1960, the Mini matched the fuel economy of what Lord had described as the "bloody awful bubble cars" ▸

Paddy Hopkirk and Henry Liddon with their Mini Cooper at the 1964 Rallye Monte Carlo, complete with trophies following the award ceremony.

'It was a beautiful car to drive. The traction you could get in tricky conditions was sensational and the handling was incredible'

PADDY HOPKIRK

Hopkirk/Liddon in action at Monte Carlo in '64 (right), where they put the Mini's poise to winning effect on the famous Col de Turini.



by attaining 36.2mpg, while offering far more interior space and seating for two additional passengers. It was quieter, more comfortable, and quicker than the unwieldy, unlovely bubble cars, and it handled superbly.

The public immediately took the Mini to heart. In 1959, BMC had built 430,000 cars and was the world's fifth-largest motor manufacturer. Thanks to the Mini and its 1100 derivative, output would soar to 730,000 in 1964. By that time the Mini was being turned out at a rate of 6,000 per week and its classless, everyman image appealed to both cash-strapped workers and the elite in equal measure.

It's subsequent adoption, in the mid-'60s, as the city runabout of choice for Swinging London celebrities such as Paul McCartney and fashion model Twiggy only deepened its cachet. By 1977, four million models had been sold and its icon status was assured.

SPORTING SUCCESS

The legend of the Mini was not only built on the streets of London, however. Its eminent place in the annals of automotive history was made complete by its success in rallying.

During the Mini's development, motor sport team owner John Cooper, the man who had pioneered the positioning of the engine at the rear of race cars and whose team had become the first British constructor to win the FIA Formula 1 World Championship, took a prototype version for a drive. He was stunned by the car's agility and its cornering ability.

He convinced BMC that a racing version of Issigonis' small wonder could be a winner and set about tuning the Mini. The car's 848cc capacity was increased to 997cc with the addition of a longer stroke, while twin carburettors boosted power towards 60bhp. Straight-cut gears helped strengthen the transmission to deal with the added power, while disc brakes at the front helped to slow it from previously unseen speeds.

Mini creator Sir Alec Issigonis in 1969 with the Mini after he had been conferred with his knighthood.

"It was a beautiful car to drive," says rally legend Paddy Hopkirk, who took the Mini to many of its greatest motor sport triumphs. "The traction you could get from the Mini, particularly in really tricky conditions, was sensational and the handling was incredible."

The competition Mini's first success came not at the hands of Hopkirk, however, but with Pat Moss, sister of Sir Stirling, at the wheel. Moss gave the car its first win on the 1962 Tulip Rally, an arduous and well-attended Dutch international.

A year on and the 1071cc Cooper S arrived. Not only did this car offer more power, but importantly it offered extra torque, allowing it to carry more speed through the corners. An entry for the 1964 Rallye Monte Carlo was announced with Hopkirk and co-pilot Henry Liddon driving.

'Nobody gave the Mini a chance. It was up against Mercedes, Porsche, Renault. After Monte Carlo everyone wanted one'

PADDY HOPKIRK

The Monte Carlo rally then featured one of the most intense, toughest stages of any event. The Bollène-Vésubie to Sospel section traversed the Col de Turini, not only a mountainous route – with multiple hairpin bends, often layered with compacted ice and fresh powder snow – but also a section run at night. It was here, in the most hostile of stages, that Hopkirk and Liddon sealed victory, with the pair exploiting the Mini's superb poise to simply annihilate the competition.

"Nobody gave the Mini a chance," says Hopkirk. "It was up against the Mercedes, Porsche, Renault, Citroën and Saab. And here was this little Mini, which was originally designed to take midwives and district nurses around Britain. After Monte Carlo, everybody wanted one."

The next year, Timo Mäkinen and Paul Easter defended the Mini's supremacy. In 1966, however, a scandal arose when the three first-place Minis were disqualified along with others for allegedly non-compliant auxiliary headlights. Then, in 1967, 'Rally Professor' Rauno Aaltonen made it a third mountain victory for Mini with Liddon as co-driver.

As the '60s wore on the Mini struggled to maintain its pace against increasingly powerful rivals from increasingly committed manufacturers and BMC's competitions department was eventually closed in 1970.

But while the Mini faded as a world power on the rally stages, its 1960s urban chic gave way to utilitarian ubiquity in the '70s and eventually to obsolescence as BMC and its successor British Leyland imploded. The work was done.

Issigonis' obsession with minimalist simplicity and John Cooper's maximalist pursuit of ultimate performance from a beautifully-balanced package had guaranteed the Mini's immortality – as an enduring triumph of engineering ingenuity and artistic vision. ◂

Style icon: the Mini appealed to the everyman, but was also a must-have for the fashion conscious in the Swinging Sixties.

Above: Rauno Aaltonen in the Mini Cooper at Monte Carlo in 1964. He claimed the car's third win on the event in '67.

Promotional literature for the 1964 Mini Cooper. By this time the car was being turned out at a rate of 6,000 models a week.

FIA FAMILY

08

Dutch drive towards a better future

With safety, sustainability and accessibility high on the agenda in both mobility and sport, motoring clubs across the Netherlands are well prepared to help build the transport of tomorrow

TEXT
/
GAIA PELLICCIOLI

ANWB NETHERLANDS

/

Continuing the development cycle

Cycling is a way of life in the Netherlands, where there are more bikes than people.

That the Netherlands is one of the world's most bike-friendly countries is hardly open to question. With more than 19 million bicycles owned by a population of just 17 million people, the country's love affair with pedal-powered transport is clear. Indeed, 84 per cent of Dutch citizens have one or more bikes and the average distance covered by bicycle is 2.5 kilometres a day, or 900km per year per person.

All this would not be possible without proper infrastructure. The Low Countries are crossed by 35,000km of cycle paths and every effort has been made to accommodate bike lovers thanks to accessible paths, good signage, appropriate separation from lanes used by cars and pedestrians, and effective synergies with other methods of transport.

The creation of a cycling culture in the Netherlands has its roots in a long-standing desire among the Dutch population to promote cycling as a safe and green mode of transport in response to a significant increase in road crashes in the early 1970s. And the country's passion for cycling goes back much further with the national automobile club itself, the Royal Dutch Touring Club (ANWB), being established in 1883 as a cycling club. "A bicycle is an essential part of daily life in the Netherlands, also for children," says ANWB President Frits Van Bruggen.

Bike culture is a true part of the Dutch national identity, reflecting concepts of democracy and solidarity, as Van Bruggen explains: "Without a bicycle, children are not able to join social activities, trips and school activities."

As such, the ANWB is particularly passionate about the Fiestenplan programme. Launched in 2016 with the help of its members, the initiative aims to collect and fix bicycles for donation to children who cannot afford them.

"If a child has a bicycle they are able to go to a school that is not necessarily in walking distance from their house, one that fits their talents and interests," says Van Bruggen. "So far we have collected 10,000 bicycles all over the Netherlands, and 6,500 of them have been refurbished and handed out to children. The ANWB hopes to have 10,000 bicycles given to children by the year 2020."

Dutch passion for two-wheel transport goes back decades; for years, cycling has been promoted as a safe form of transport.

CALLS TO ACTION

An integrated transport system where all road users can move in a safe and sustainable way is another key priority for the ANWB, where road safety activities are top of the club's agenda.

"For the first time, we have seen that the number of fatalities among cyclists is higher than the number of people killed in a car," says the ANWB President. "Older cyclists are especially at risk. Also, as in other countries, traffic distraction is a growing concern."

Traditionally, the Netherlands has always been at the top of the international road safety 'chart' alongside Sweden and Malta. That status is increasingly difficult to maintain, however, due to the growing number of people seriously injured in road traffic incidents.

"In 2017, 613 people died in traffic accidents, a small decrease compared to 2016 [629]," says Van Bruggen. "Moreover, almost 21,000 people were seriously injured on Dutch roads. This number has been increasing by roughly 1,000 per year over the past 10 years. The societal cost is estimated at around €15 billion per year. This poses an enormous challenge, because what measures can be taken to turn around this trend in addition to all the measures that have already been taken in past decades?"

In response to the increase, the ANWB set up a Road Safety Coalition in 2016 together with some 50 other organisations to improve road safety and lobby government to make it a priority.

Elsewhere, distracted driving is a significant area of focus for the club.

Van Bruggen explains: "Last year, over 40 organisations signed an agreement outlining their individual contributions to reducing traffic distraction. And a joint campaign against traffic distraction is being launched in September."

Other areas of involvement include infrastructure assessment – ANWB measured the safety of 8,000km of provincial roads, employing methodologies developed by EuroRAP, and developed a similar assessment for cycling infrastructure – and road safety education through programmes such as Streetwise and Streetwise Next Level, which are aimed at teaching children from the age of four to 14 to behave safely in traffic. These programmes are now being supported by hundreds of schools in the Netherlands.

More recently the ANWB, in cooperation with ACEA (the European Automobile Manufacturers' Association), CLEPA (the European Association of Automotive Suppliers) and the FIA committed to support the European Commission's road safety targets of zero traffic fatalities by 2050, and on June 15 signed a road safety pledge in the presence of European Commissioner for Transport Violeta Bulc.

The club's initiatives in the area of sustainable transport are no less impressive than its efforts in road safety.

"We are convinced that in the near future the electric car [battery or hydrogen powered] will be mainstream in the Netherlands," says Van Bruggen. "The ANWB is working in a private/public partnership to accelerate electric driving in the country. On the one hand we will build the 'electric car community', developing content about electric cars, creating new tools to calculate the benefits, organising test events etc, and on the other we will come up with new relevant products and services, selling charging stations, charging cars and electric cars in our private lease proposition, and preparing roadside assistance for electric cars."

The ANWB, which is currently celebrating its 135th anniversary, has its headquarters in The Hague.

'We are convinced that in the near future the electric car will be mainstream in the Netherlands'

NEXT GENERATION

In a fluid transport market, the ANWB has understood how to successfully diversify the services it offers, adapting to increasingly specific needs.

"Currently the ANWB – which this year celebrates its 135th birthday – is an organisation in excellent condition with more than 4.5 million members, of which over 3.3 million have a membership with roadside assistance," says Van Bruggen.

"However, we are looking at offering different products and services to our members. We want to move away from just roadside assistance to broader mobility, and from occasional relevance to daily relevance. To do this we have developed the 'On the Go' app [currently with more than 2.4 million downloads], a fuel programme, ANWB Parking, Private Lease and we are working on Mobility as a Service.

"Commercially, the biggest things are our innovative insurances. In 2016 we launched our Safe Drive Car insurance and currently we have sold 25,000 policies. With this insurance the safer our members drive, the bigger the discounts they receive," he says.

"We are constantly monitoring the market not to miss any opportunities. For example: digitalisation. We currently have more than 2.6 million MyANWB accounts, our own expert platforms and our members app with information, advice and member benefits," says Van Bruggen.

One of the key objectives of the Dutch club is to attract younger members. To do this, it recently introduced a new membership category, the ANWB Partner and Youth card, which gives members roadside assistance in the family car for a low price and, in the case of the Youth card, for free. Since it was debuted in 2014 the cards have been used by 550,000 members.

"We also introduced a Drivers' licence box for young drivers who have just passed their test. With this box they get the chance to try roadside assistance for a year for free and they receive useful and fun goodies. In one year, 10,000 boxes have been requested." ▸

The club's strategy to attract younger members is reflected internally in the attention it pays to the development of young staff members, who can contribute to the organisation's success.

"At the ANWB there are 18 different staff associations. Young ANWB is the biggest with 115 members," says the president.

"Set up in 2010, Young ANWB aims to help young professionals within the club to connect with each other, find inspiration and develop their skill set. We want to inspire the Young ANWB members by organising special events such as the Dutch Mobility Hackathon, and by visiting companies we can learn from such as TomTom and NS.

"One of our highlights each year is our study trip to a sister club. Last year we visited ÖAMTC [in Austria] and in the past we have visited RACC [in Spain], NAF [in Norway] and the AA [in the UK]. This year's trip will take us to Munich for a visit to ADAC. These study trips are a perfect opportunity for the 20 Young ANWB participants to learn more about other clubs, connect and of course have fun."

Van Bruggen believes that by focusing on youth development the club will be well placed to embrace a future in which mobility will be increasingly connected, automated and tech-oriented.

"At ANWB we have to see the digitisation of mobility as an opportunity to better understand the needs of our users, because there's no stopping it.

"Change is coming," he concludes, "but how it will look is very hard to imagine. The most important thing for an organisation in the mobility domain is to have a culture that embraces technological change and is flexible enough to meet the ever-changing needs of a large and diverse group of users."

'At ANWB we have to see the digitisation of mobility as an opportunity to better understand the needs of our users'

FIA President Jean Todt is shown a bike from the ANWB's Fiestenplan programme (above). The initiative aims to donate bikes to children who cannot afford them. Right: young ANWB staff members on a study trip to the ÖAMTC in Austria.

KNAC Nationale Autosport Federatie /

Bringing racing power to the people

With around 10,000 licence holders in the Netherlands, the KNAC Nationale Autosport Federatie (KNAF), the country's national sporting authority, is at the forefront of the promotion of motor sport.

Founded in 1980, KNAF, which is also a member of the Dutch Olympic Committee (NOC*NSF), operates under the slogan 'Bringing Motor Sport to the People' and with a central goal of making motor sport more accessible and affordable for everyone, especially younger generations.

"We invest a lot in trying to get the message across to people on how to get started in karting, racing and rallying, for the simple reason that many don't know how to enter our sport," explains the ASN President Peter Dorn. "We have a mission to make entry to motor sport as simple as it is with football, not by having a club in every city or village, but with good internet and social media promotion."

In this regard the club has enjoyed success with virtual racing, often defined by many as 'the new grassroots of motor sport'. Since 2017, e-racing been one of KNAF's additional disciplines and in that time it has become immensely popular thanks in part to its affordability.

"With virtual racing we have a motor sport activity available for every budget," says Dorn. "We hope to see an enormous growth in new licence holders."

Another important area of the federation's work is in education.

"We invest a lot in training programmes for marshals and officials," says the KNAF President. "As for drivers, we focus on the KNAF Talent First programme at the Centre for Elite Sports and Education in Eindhoven. With the KTF programme we train drivers on various aspects including physical, psychological, media, technique and tactics."

NURTURING TALENT

Ex-Formula 1 driver Giedo van der Garde, who was part of the KTF programme in 2003, is now its National Coach and among those who have participated in the project are drivers such as endurance racer Ho-Pin Tung, rally stars Hans Weijs Jr and Kevin Abbring, European Formula Renault 2.0-litre driver Richard Verschoor, USF2000 driver Rinus van Kalmthout and F1 superstar Max Verstappen.

"For ambitious young drivers who haven't the capacity to reach the international level of the sport, we have the KNAF Academy where we train youngsters on a variety of aspects as mentioned earlier."

With talent such as Verstappen and F2 star Nyck de Vries as examples, the federation is hoping that other young people will feel inspired and want to take part in the sport. As such, KNAF has developed series like NEZ Formula 4 and the Ford Fiesta Cup dedicated to developing young talent.

But having role models isn't enough. Suitable facilities are also required (such as the two international circuits of Zandvoort and TT Circuit Assen) that can give fans and drivers an experience like no other.

"Every youngster dreams of driving on these circuits," says the Federation President. "Especially at events such as DTM, Jumbo Racing Days and Gamma Racing Days. Both circuits hope to host Formula 1 Grands Prix in the future. We hope that one of these circuits can make this happen... that would again be a giant boost for motor sport in the Netherlands."

'We have a mission to make entry to motor sport as simple as it is with football, with good online and social media promotion'

The federation is also active on the issue of sustainable motor sport.

"We support sustainability actions across our disciplines," says Dorn. "For example, rallycross is developing an electric car for its junior series. Other disciplines are already interested it this car, so we are happy to see a high attention to sustainability.

"Internationally, KNAF is partnering on a project launched in March that has been hugely successful and which ties in well with the federation's goal of making the sport accessible to everyone: the Girls on Track programme."

GIRL POWER

Targeted at girls between the ages of 13 and 18, Girls on Track aims to promote and develop the presence of young women in motor sport at grassroots level using the karting slalom, a cost-effective and easy to set up format. The two-year project has received funding from the EU's Erasmus+ education and training programme.

"Only five per cent of our licence holders are female," says Dorn. "That is far too low. Motor sport is a sport for men and women. For example, look at the talented female drivers we have in the Netherlands such as GT racers Beitske Visser and Stéphane Kox."

In its first year, Girls on Track will see karting slalom events staged in central urban locations in eight European partner countries, including the Netherlands, with the initial phase expected to reach more than 3,000 young women.

Three girls from each country's events will then go forward to a European Final at Le Mans in March 2019 for the chance to be among the six drivers selected for a European Team. The six winners will attend FIA Driver Training Camps, where they will be supported by the FIA through a sporting and educational programme. The programme will end with a closing event in Brussels next autumn.

The KNAF Academy works to help young Dutch drivers realise their ambition of competing at international level.

Girls on Track is promoting the involvement of women in motor sport through karting competitions, supported by the KNAF.

"With Girls on Track we hope to make a lot of girls enthusiastic about becoming the new Beitske, Stéphane or the female Max," says Dorn. "The selection events in eight different countries is a first big step in promotion and at KNAF we are already thinking about next steps." ▸

Koninklijke Nederlandsche Automobiel Club /

Learning the lessons of history

What became the KNAC was founded in 1898 on the occasion of the first international Paris-Amsterdam Rally.

'Be it with modern or classic cars, our club has a role to play in preserving the pleasure of car driving'

The number of vehicles registered in the Netherlands on January 1 2018 reached 12.5 million according to the Dutch national statistics agency CBS, a two per cent increase since the start of last year.

Even if car ownership among young people is becoming less popular as they tend to live more in urban centres, where bicycles and public transport provide workable alternatives, motorisation is still on the increase and serving the needs of road users is the Koninklijke Nederlandsche Automobile Club (KNAC), founded in Amsterdam in 1898 on the occasion of the first international Paris-Amsterdam Rally.

The club's past is linked to the history of both racing and rallying, although in 1980 motor sport was moved under the authority of the KNAF (KNAC Nationale Autosport Federatie).

"As there wasn't an automobile club in the Netherlands, [the rally Paris-Amsterdam] was the correct and most pragmatic occasion [to establish one]," explains KNAC President Carl Höhner.

"In 1904, NAC was one of the founding member clubs of what later became the FIA. In 1913, member cars and drivers were made available to the Dutch army during the First World War and NAC became KNAC [Koninklijke means Royal in Dutch]."

The club's heritage and history of promoting automobiles and supporting motorists across the nation is still reflected in its main mission today: to help members enjoy their vehicles.

"Be it with modern or classic cars, our club has a role to play in preserving the pleasure of car driving," says Höhner. "In May, to celebrate the 120th anniversary of KNAC's formation, the Paris-Amsterdam Rally was held once again for our members on nearly the same route as in 1898."

As for the promotion of historic vehicles, which may seem to contradict the development of sustainability mobility, Höhner has no doubts about the club's role.

"We promote the use of clean and safe cars, especially concerning daily vehicle usage," he says. "We realise that historic cars are less safe and more polluting, but with serious maintenance and limited use the impact is negligible."

MEMBER BENEFITS

Safety is also a key concern for the Dutch club, which co-operates with its sister club the ANWB on the main road safety issues in the Netherlands.

"Recently the number of road casualties has unfortunately been rising and this is mostly involving cyclists," explains Höhner. "This is partly due to electric bikes which attain relatively high speeds. We took part in the FIA campaign against this hazard, but a lot of work still remains to be done."

In addition to roadside assistance and insurance sales, the club's main activities are related to the organisation of member events.

"Although memberships in the Netherlands are decreasing in general, our club is growing," says Höhner. "We focus our attention on car enthusiasts, both historic and modern. The events we organise are appealing to new members as well as other car clubs.

"We lobby the government to keep environmental zones open for historic vehicles. We also have a club magazine that appears eight times a year in which attention is given to developments in the car industry, historic vehicles and clubs, and KNAC activities as well as political issues around mobility."

Knowing the past to understand the present and direct the future: this simple statement is the secret of the club's success, it seems. Höhner agrees: "With concerns about carbon footprints and the future of our planet, the essence of car use is evolving. But the freedom cars have given us over the past century and more is an important achievement that should be cherished. Our members embrace these challenges."

When asked about the future of mobility, Höhner is sure that whatever changes may come the quality of life of those on the road must be preserved.

"[Automation and interconnected mobility] will reduce congestion and casualties. They will also improve accessibility and the environment.

"Since the Netherlands is a relatively small and densely populated country, traffic management will be key to future mobility and quality of life." ◂

09

MOVING ON UP

Global car sales show no sign of slowing down despite uncertainty in the global economy and predictions of declining interest in driving

In an analysis of 57 countries, vehicle sales for the first half of 2018 were up by 3.6 per cent compared with the same period last year, with an extra 1.54 million cars sold worldwide. The big mover was India, where sales are up by 16 per cent, which has seen the country overtake Germany as the world's fourth biggest car market. The other climber is the SUV, which accounted for 34 per cent of passenger car sales in the first half of 2018.

TOP 10 MARKETS

% 2017 vs 2018

01 **China** 12,234,244 +4%

02 **USA** 8,624,189 +2%

03 **Japan** 2,691,054 -2%

04 **India** 1,982,442 +16%

05 **Germany** 1,973,242 +3%

06 **UK** 1,494,680 -6%

07 **France** 1,423,481 +5%

08 **Italy** 1,206,744 -1%

09 **Brazil** 1,127,048 +14%

10 **Canada** 1,042,275 0%

GLOBAL INCREASE IN CAR SALES

2017 2018

GLOBAL VEHICLE SALES BY TYPE

2017 2018

	UNITS	2017 vs 2018	2017	2018
SUV	14.95m	+14%	30.9%	34.0%
COMPACT	7.10m	-4%	17.4%	16.1%
SUB-COMPACT	5.40m	+2%	12.5%	12.3%
MID-SIZE	3.45m	-1%	8.2%	7.8%
MPV	3.13m	-13%	8.5%	7.1%
CITY CAR	2.63m	+2%	6.1%	6.0%
PICK-UP	2.52m	+6%	5.6%	5.7%
LCV	2.14m	+5%	4.8%	4.9%
EXECUTIVE	1.21m	+5%	2.7%	2.8%
VAN	876k	+3%	2.0%	2.0%
SPORT	264k	-11%	0.7%	0.6%
LUXURY	192k	+16%	0.4%	0.4%

1.54 million more cars sold in first half of 2018 – an increase of **3.6%**

WORLD'S TOP 10 MODELS

% 2017 vs 2018

Ford F-Series 534,827 +3.0%

Toyota Corolla 478,122 +1.2%

Volkswagen Golf 431,836 +0.6%

Honda Civic 421,664 +6.4%

Toyota Rav4 395,816 +7.0%

Nissan X-Trail/Rogue 392,489 -5.3%

Volkswagen Passat/ Magotan 356,566 +4.6%

Honda CR-V 339,081 +0.1%

Honda HR-V/XR-V/Vezel 334,917 -8.1%

Chevrolet Silverado 326,427 +10.2%

SUV CAR SALES IN 2018

Russia 45%

USA 44%

Canada 42%

China 42%

Korea 34%

Europe 33%

Asia-Pacific 27%

India 23%

Latin America 22%

Japan 12%

An automotive visionary (10)

With the death of *Sergio Marchionne*, the automotive world has lost a visionary business leader. FIA President *Jean Todt* pays tribute to the late FCA CEO and Ferrari Chairman

TEXT / LUCA COLAJANNI

Sergio Marchionne was one of the great motor industry leaders of recent decades and his tragic and untimely death in July affected not only those who knew him well or worked at the FCA Group and Ferrari, which he headed up, but also those in the wider world of the automobile sector.

"The passing of Sergio Marchionne is a great loss for the whole FIA community, given his roles on the FIA High Level Panel for Road Safety and on the Formula 1 Strategy Group," said FIA President Jean Todt. "Sergio achieved so much in the motor industry and in motor sport at a global level. He was completely dedicated to the FIAT Chrysler group and expended all his energies on bringing Scuderia Ferrari back to the top level in Formula 1."

Called, in 2004, to run Italy's Fiat group during one of the most difficult periods of its history, Marchionne managed to save the organisation and unite it with another historic company, Chrysler, thus creating one of the most important global players in the motor industry.

'The passing of Sergio Marchionne is a great loss for the whole FIA community, given his roles on the FIA High Level Panel for Road Safety and the F1 Strategy Group'

FIA PRESIDENT JEAN TODT

His strategic vision and no-nonsense style of management had a profound effect on Italy's industrial culture and revitalised Chrysler when the US manufacturing giant appeared to headed towards terminal decline.

In addition, Marchionne himself was an example of professional dedication and passion for the task at hand. He was an inspiration to many of his colleagues, especially the youngest among them. His most recent love was Ferrari, and Marchionne gave the company, and its sporting endeavours, a huge boost over the past four years. It will fall to his successor to take on the not inconsiderable mission of achieving his objectives and, above all, his dreams.

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