MaaS: Connecting the new network of urban travel
Mobility as a Service is set to change the way we move by making journeys seamless.

Germany’s racing giants charge into Formula E
After dominating in F1 and the WEC, Mercedes and Porsche are ready to make sparks fly in electric racing.

The material concerns affecting alternative energy
AUTO looks at how new forms of mobility are putting strain on supplies of rare earth minerals.

'I’m not slowing down now – I’m just going to go for it'
How F1 legend Mika Häkkinen came back from a life-threatening crash to take two world titles.

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Dear reader,

The third issue of Auto 2019 is packed with interesting and thought-provoking in-depth articles on many topics.

The cover story gives a cogent analysis of Mobility as a Service (MAAS). It examines how mobility in major cities is changing due to technological development and through the actions of urban inhabitants, legislators, public and private transport companies as well as car manufacturers. All are aware of the need to respond to the challenges of climate change. The FIA and its clubs want to be, and must be, at the forefront of sustainability.

We also hear the thoughts on current affairs of someone very much involved in the world of motor sport and mobility: the President of the FIA Manufacturers Commission, François Fillon. He talks us through progress made with the Green NCAP Programme and the FIA’s Portfolio Strategy aimed at modernising the FIA championships. We then meet Ralf Speth, the man responsible for shaping the future of two historic yet very different brands, Jaguar and Land Rover.

Our regular look at rising motor sport talent focuses on Oliver Solberg, son of the famous Petter Solberg, who is making waves in the world of rallying. Meanwhile, our Legends section is devoted to a driver who in just a few years went from being close to death to becoming a double Formula 1 World Champion – Mika Hakkinen.

We also pay tribute to a recently departed giant of the automobile world: Lewis Hamilton and the Mercedes team on their sixth F1 Drivers’ and Constructors’ World Championship titles. These stories and many more can be found within the pages of this issue.

I hope you enjoy it and, as always, if you have any suggestions on how to make it even better, please get in touch.
From the future of Mobility as a Service, to Mercedes and Porsche’s arrival in Formula E, to the Mika Häkkinen legend, this is AUTO
At the United States Grand Prix in early November, Lewis Hamilton became only the second driver in the history of the FIA Formula One World Championship to claim six titles.

The Briton, who ahead of the race at the Circuit of the Americas had racked up nine victories, faced a tricky test in Texas, while his only title rival, Mercedes team-mate Valtteri Bottas, started from pole position. Hamilton began the race in fifth, his lowest grid spot of the year.

However, after climbing to third soon after the start he maximised a one-stop strategy to claim his 150th career podium finish with a second place that brought enough points to put the title beyond reach for Bottas.

HAMILTON’S HARD ROAD TO GLORY
Following the race, Hamilton confessed that his sixth world title had been the toughest to date. “Cloud nine doesn’t even get close, it’s far above that,” he said. “It’s been the hardest year but I’ve enjoyed all the ups and downs, going through the good and the bad. I think now I’ve got just a bit of emotion left but I feel truly humbled.”
Estonia's Ott Tänak won the 2019 FIA World Rally Championship title after finishing the Rally of Spain in second place. Tänak's victory ended a 15-year dominance of the title by French drivers Sébastien Loeb and Sébastien Ogier. Toyota driver Tänak and co-pilot Martin Järveoja won the coveted title with one round to spare.

"It's difficult to say the pressure I felt this weekend, it was next level," Tänak said. "I never wanted to take risks but my mother said yesterday evening that if I want something I can make it happen. I just had to make it happen."

The season's penultimate rally was won by Hyundai's Thierry Neuville with team-mate Dani Sordo in third place.

TECHNOLOGY TRANSFER

F1 design ace Adrian Newey has brought his aero know-how to the eagerly-anticipated Aston Martin Valkyrie, which should boast some of the best downforce levels of any hypercar. Attention has also been focused on the interior, which features reclined F1-old-style seats and a detachable steering wheel.

TÄNAK DIGS DEEP FOR TOYOTA

Ott Tänak scored significant points in the final Power Stage in Spain to extend his championship lead over event winner Thierry Neuville by 18 points with just one more round in Australia remaining worth a maximum of 30. By taking second place Tänak becomes Toyota's first drivers' champion since Frenchman Didier Auriol in 1999/2000.
In this issue: FIA President backs the return of iconic rallies for 2020; FIA and FIM to collaborate on safety; Toyota unveils autonomous transport plan for Tokyo 2020 Olympics; Jean Todt spreads road safety message through the Americas; renewed support message for Girls on Track scheme.

Historical rallies return to new-look WRC calendar

Kenya’s famed Safari Rally will return to the FIA World Rally Championship as a part of a new-look, more global schedule for 2020 that also sees Japan and New Zealand rejoin the calendar.

The Safari Rally, often marked down as one of the most gruelling events in world rallying, will mark its return to the WRC calendar 30 years after it last appeared in 1990, making the WRC will also return to the African continent for the first time since then.

“It is my great pleasure to announce to the FIA and FIM President Jean Todt that his continent for the first time since then. This returns the African continent to the world rally calendar for the first time in more than two decades. It is a testament to the commitment of the FIA and FIM to support the development of rallying across all continents and regions and the FIA who have been instrumental in returning these rallies to the calendar for 2020.”

The safari Rally last appeared on the calendar in 1990 and will return to round to next year, taking place on September 5-6. The picturesque north inland coastal city of Mombasa will host the country’s 33rd WRC appearance.

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Rally Japan, which takes place from July 19-25, kicks off the second half of the 2020 WRC campaign.

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The return of Japan and Kenya provides a further globalise the series for the first time in more than two decades. It is a testament to the commitment of the FIA and FIM to support the development of rallying across all continents and regions and the FIA who have been instrumental in returning these rallies to the calendar for 2020.”

The new-look WRC calendar will feature a number of changes for the 2020 season, including:

- The Safari Rally, last held in 1990, will return as a standalone event in July.
- Rally New Zealand, last held in 2012, will return in November.
- Rally Japan, last held in 2015, will return in December.

The new-look calendar is designed to provide a more balanced distribution of events across the year, with a focus on promoting rallying in new and emerging markets.

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Jean Todt pays tribute to former French President Jacques Chirac

On behalf of the FIA, President Jean Todt has paid public tribute to the significant road safety achievements of former French President Jacques Chirac, who died in September 2019, aged 86.

Chirac acted as prime minister of France from 1974-81 and again from 1995-97, was mayor of Paris from 1977-95 and finally served as President of France from 1995-2007.

A sometimes controversial figure, Chirac’s political career was not without controversy as he was found guilty of corruption charges in 2011 but during his time as President he was focused on road safety and his major achievements were to significantly cut the number of road deaths and injuries on the roads of France.

Having been inspired by a road crash in 1978, Chirac was inspired to take action to the former President of the French Republic Jean-Paul Chirac, who died on September 28, 2019, and in particular we remember his actions for road safety on September 28, 2019, and in particular we remember his actions for road safety.

FIA President Jean Todt said: “The entire FIA community pays tribute to the former President of the French Republic, President Jacques Chirac. "He had a clean mobility policy," said Heui Won Yang, FIA President Group Vice President and Deputy Secretary General of the FIA. "The technology allows customers to actively tackle emissions issues. It is strong to further extend this technology beyond the eco-friendly vehicle line-up to those with internal combustion engines.”

The solar roof system features a structure of silicon solar panels that are mounted onto the car’s roof. Able to operate even while the car is moving, the solar roof system can charge 30 to 50 per cent of the battery per day over six hours and is expected to increase drivers’ travel distance by an extra 1,000 km annually.

The system is composed of a solar panel and controller. Electricity is produced when solar energy activates the solar panel’s surface, which converts this energy by using photons of light.

The FIA Foundation’s Sheila Watson said: "The FIA Foundation is delighted to work tirelessly to achieve the impossible, and we want to support organisations around the world in their efforts to develop the world's first dedicated to addressing air pollution."
During the summer, FIA President Jean Todt embarked on a tour of the Americas, visiting six countries across the region to discuss strategies for road safety improvements, motor sport development and to see the emerging shape of future mobility.

The President’s tour began in New York, where he met with United Nations Secretary General Antonio Guterres and Deputy Secretary General Amina Mohammed to discuss the current global road safety situation. While in New York, he also met with Tigges Muhammed-Bande of Nigeria, who was appointed President of the UN General Assembly on September 1, and Luis Alfonso de Alba, the UN Secretary General’s Special Envoy for the 2019 Climate Summit.

The next stop took the FIA President to Ecuador for the 2nd edition of the FIA Congress of the Americas, held in Quito from August 3-5. Alongside FIA Deputy President for Sport, Graham Stoker, FIA Deputy President for Automobile Mobility and Tourism Thierry Wilmotte, FIA Vice-President José Abed (North America) and Carlos Garcia Remohi (South America), Region III President Tim Shearman and Region IV (South America) and Carlos Garcia Remohi (South America), Region III President Tim Shearman and Region IV President Jorge Tornez Croiz and supported by ANA, President Gato Garcia Fernando and FIA ASN Development Task Force President Andrew Papadopoulos, President Todt led a wide-ranging series of meetings on motor sport development in the region. The congress, attended by 115 delegates from 40 countries and Mobility Clubs from 45 countries, also identified key mobility challenges for clubs across the Americas.

Finally, the delegates agreed to adopt the ‘Quito Agreement,’ a declaration that will lead to concrete action to promote safe and sustainable mobility across America. “Road traffic injuries are the leading cause of death for children aged 1-4 years in Argentina, Brazil, Chile, Costa Rica, Cuba, Ecuador, Mexico, Paraguay and Uruguay, and for people aged 1-4 in Argentina, Ecuador and Paraguay,” said President Todt. “Adoption to UN treatate will immediately introduce minimum vehicle-road safety standards and recent research shows more than 80% Latin American lives could be saved and over 80% serious injuries prevented by 2021 if UN vehicle safety regulations were applied by four key countries in the region: Argentina, Chile, Mexico and Brazil.”

While in Ecuador, the FIA President also took time to meet with representatives of the Ministry of Public Health to discuss the country’s progress in improving road safety. The tour next moved to Colombia where he was welcomed by the Touring Car Association of Colombia (ACC) President Ricardo Miranda Rubio and ACC Director General Alfredo Albornoz.

Alongside the President of the Inter-American Development Bank Luis Alberto Moreno and José Abed, Vice-President of the FIA for North America, President Todt met with the country’s President Ivan-Duque Márquez. Fruitful discussions were held around key road safety issues and, in particular, the need for Colombia to adhere to the UN conventions and the WHRP standards. As a result, President Duque-Márquez expressed his personal commitment to prevent risk situations on the country’s roads. As part of his visit to the country and to support Colombia in improving road safety, President Todt, together with the National Government, signed the Pact for Road Safety of Children and Adolescents.

The pact, supported by the Global Alliance of NSOs for Road Safety, the Police Road Traffic Directorate and the Road Safety Business Committee (COSAD), which represents over 115 multinational and local companies, is part of the overall strategy of the national government to generate a public policy in line with the 2030 agenda for sustainable development. On the sporting side, a successful meeting was held with representatives from the Antiqua Department, who are financing the construction of an FIA-certified new track in the municipality of Bello in Medellín, Colombia. The visit to Colombia was followed by two days in Jamaica, hosted by the Jamaica Automobile Association (JAA). During the visit President Todt gathered in the four countries of the Caribbean region to discuss road safety imperatives. The party travelled to Cuba as guests of the Federación de Automovilismo y Kartismo de Cuba (FADIC), chaired by Ernesto Quiróz Robles. In Cuba President Todt met with representatives of a number of UN agencies and with the Ministry of Transport, Eduardo Rodríguez Díaz.

After the short flight to Mexico City, President Todt, alongside José Abed, President of club OMKA, and José Aguilar, President of the Federation for Sport of Mexico, held a press conference to welcome the renewal of Formula 1 partnership with the Mexican Grand Prix.

From Mexico City back to the US, where with FIA Secretary General for Automobile Mobility and Tourism, Andrea Michelot, the president visited a number of companies in San Francisco’s Silicon Valley, all of which are paving the way for new forms of mobility. These included: Ridecell, Lucid Motors, Zozo, Intel, Google-Waymo and Tesla.

“It was a fascinating opportunity to see and experience the ground-breaking advances taking place in automated driving, the transition to electric powertrains and the growing importance of connected technology. Our Council can only underline the relevance for mobility and motor sport,” concluded President Todt. “We made some very worthwhile new connections and I am hopeful that we will be able to use these to harness new opportunities and valuable content for the FIA.”

Road safety, future mobility and motor sport development on the agenda

FIA President tours the Americas

In New York, President Todt met with UN Secretary General Antonio Guterres.

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President Todt with Colombian President Ivan Duque Márquez
The FIA has pledged further support for the Girls on Track programme designed to boost the participation of young women in motor sport.

The project was discussed at a conference for the EU Erasmus-supported FIA European Young Women Programme, a federation-backed initiative to champion gender equality and increase the participation of women in motor sport at grassroots level, attended by the Michael Schumacher Private Collection – one of the world's most valuable motorsports collections – and among its attractions is its own karting facility.

The conference was held at the FIA's Brussels headquarters in October.

The FIA Women in Motorsport Commission President Jean Todt and European Commissioner for Transport Violeta Bulc among those attending.

Following a review of the two-year project, key outcomes were presented, including a comprehensive sociological survey and set of recommendations to the sport's stakeholders and public institutions on how to challenge gender stereotypes around sport and better promote equality.

"We have to look at increasing the number of girls participating at the base level (of motor sport)," said Ms Mouton. "This was very much part of the philosophy of our Erasmus-supported Girls on Track karting challenge, getting young girls inspired and having a go, and challenging themselves by doing something perhaps only their brother had done."

"With the FIA's continued funding from the Erasmus programme, its Women in Motorsport Commission launched the Yotsuba-backed FIA Girls on Track Karting Challenge in March 2018. The programme – partnered by eight European national sporting authorities – welcomed 1,650 girls aged 10-16 to participate in one of 22 urban karting event-waves held across nine countries, before a six-strong European Team was selected at the final in Le Mans. That team attended two Driver Training Camps to help enhance their track sport career. A survey revealed positive feedback from participants in the karting events, with a 96.2 per cent satisfaction rate.

"I am delighted to confirm that we will continue with Girls on Track into the future," said the FIA's Deputy President for Sport, Graham Stoker. "We are also looking at establishing an elite academy to help young women along the pathway of the sport. I’m confident we can deliver vital support to women, making a positive contribution to gender equality."

Motorworld welcomes World Motor Sport Council to Cologne

Germany's Motorworld Group welcomed the World Motor Sport Council to its Cologne site at the start of October for the third of its four scheduled annual meetings.

Motorworld Köln-Rheinland opened on the site of the former Butzweilerhof airport in June last year and among its attractions is the Michael Schumacher Private Collection – one of the world’s most reputable motorsport collections, and thus a fitting location for the council to take decisive action that will shape the world of motor sport for the future.

The Motorworld concept began in 2015 with the launch of Motorworld Region Stuttgart, where trade with classic cars, premium vehicles, sports cars, collectors’ cars and bikes was brought together with glass-parking boxes for collectors’ vehicles, specialist workshops and online shops. Located on the site of the former Württemberg state airport in Böblingen, Motorworld Region Stuttgart is the largest private and maker-neutral classic car and sports car centre in Europe. The concept also comprises hotel and conference facilities and restaurants, making it a popular meeting and event location for companies, customer and employee events, exhibitions, trade fairs, product presentations, gala dinners and conferences.

In June 2019, Motorworld Köln-Rheinland opened on the site of the former Butzweilerhof airport. In keeping with the Motorworld concept, a broad range of tenants and partners can also be found here, including the free-to-the-public Michael Schumacher collection.

Further locations are currently under construction, including Motorworld München. From 2020, it will become a unique meeting place for connoisseurs of a premium quality driving culture, and at the same time Germany’s most versatile event venue. Also under development are Motorworld Zürich and Motorworld Luxembourg.

For more information visit: www.motorworld.de
Please contact Karen Ellis on +44 (0)203 915 0000 or karen.ellis@integrogroup.com to discuss your insurance requirements.

Karen Ellis and Tim Nagle look forward to seeing you in South Africa at the FIA Conference 2019.

As an intensely busy year draws to a close, FIA Manufacturers’ Commission President François Fillon reflects on advances with the Green NCAP programme in Mobility and, in Sport, the FIA’s mission to drive innovation in its championships through a portfolio approach to manufacturer involvement. Another year for the FIA’s Manufacturers’ Commission has come and gone, and it is pleasing to see that the Commission has allowed its engagement efforts of discussion to be extremely relevant to today’s global automotive industry, both from a mobility and motor sport perspectives.

The Commission met twice in 2019, first on March 6 at the FIA’s base in Geneva, on the occasion of the Geneva Motor Show, and the second on September 17 in Frankfurt, on the occasion of the Frankfurt Motor Show. At the forefront of discussions for both meetings were updates on the ongoing work of the FIA’s Mobility Department, mainly concerning updates on the ‘FIA Portfolio Strategy’ initiative – of which more later – the FIA’s Sport research into Clean Fuels for racing applications and an overall update on the evolution of the FIA Championships.

For the FIA Mobility Department, the Commission offers a platform where the FIA can discuss with car manufacturers some of the pressing concerns facing mobility clubs. In that respect, members of the Commission were presented with the results of the Green NCAP pilot project, an initiative supported by the FIA which aims to provide the most comprehensive independent information to consumers in relation to the environmental performance of vehicles. We also continued discussions on the importance for the automotive sector to agree on a basic set of safety standards that all vehicles, no matter where they are sold, should incorporate.

At a time when the future of diesel vehicles is being discussed, the Commission addressed the potential contribution of modern diesel technologies as one of the options for consumers, evidence shows that new diesel can reduce their emissions to levels also achieved by petrol cars, while maintaining their inherent CO2 advantage.

The automotive industry is going through one of its most significant changes, in the form of the global electrification movement. As manufacturers continue to pour investment into the research of EV powertrains and related components for their road-homologated vehicles, it is cardinal for the FIA to be able to offer championships that reflect the current global vehicle car park and, as such, this implies a need to offer technical regulations, sporting formats and event promotions which reflect the ability to offer full EVs.

It would nevertheless be unwise to simply convert most if not all of our championships to mandate the use of EVs. That is why FIA Sport embarked on the Portfolio Strategy, which aims to analyse the current state of all FIA championships through myriad criteria, focused on the level of powertrain technology utilised, the level of ‘investment’ manufacturers in the championship (is it a manufacturer-supported series or is it customer racing?) and to what extent the championship’s promotion reaches the fans. As this current scenario was mapped, a total of 14 meetings with the manufacturers’ representatives at the Commission were held to make presentations and to get their views on how each championship should evolve from a technological and promotional point of view, based on their own road car portfolios.

Based on this feedback the work was distilled into a new presentation showcasing the suggested evolution of each championship. This was then delivered to the Commission at the meeting in Frankfurt.

As we continue to work on improving the level of engaging and relevant discussions at the heart of the Commission, I am confident that we will be able to make impactful moves within the FIA and, hopefully, to the general automotive Industry as a whole.
With a world rally and rallycross champion father, Oliver Solberg was always destined to have his name in lights. But thanks to an impressive campaign in the 2019 FIA European Rally Championship and a cameo at this year’s Wales Rally GB WRC round, the 18-year-old looks ready for a starring role on rallying’s biggest stages.

SEQUEL

HOLLYWOOD

looks ready for a starring role on rallying’s biggest stages

impressive campaign in the 2019 FIA European Rally Championship

Oliver Solberg

With a world rally and rallycross champion father, Oliver Solberg, with ancestry Scandinavian looks and an engaging, offbeat, endlessly talkative personality

One thing they don’t share in common is driving style, though. Like most drivers of his flourishing generation, Oliver’s style is more neat and economical than that of his flamboyant dad, who grew up in an era when the cars definitely de-finitely felt like a special moment; I must admit though, that Petter made his own, winning the last WRC title for the self-styled ‘Ferrari of rallying’ back in 2003: more than 15 years ago.

Rally Association Championship with the iconic Subaru USA to compete in the American Rally Association Championship with the iconic

A couple of weeks before Wales Rally GB, Oliver embarked on an extensive farewell tour this year, his dad Petter retiring after passing his driving test: in Sweden, which is where the car definitely had to be wrestled rather than coaxed.

For me, it was all about rallying right from the start," explains Oliver. “It was really my dream for a long as I can remember. I tried a few other things, such as rallycross and stuff like that, but it was never the same.”

One of his fellow competitors at that Bettega Memorial event was Petter Solberg, who had won four times – was Oliver’s first WRC event and Petter's last, with the 19-year-old having embarked on an extensive farewell tour this season. But it all depended on just one thing. A couple of weeks before Wales Rally GB, Oliver tackled his driving test in Sweden, which is renowned for having one of the toughest licence examinations in the world.

"I’ve never felt more nervous in my life!” remembers Oliver, who only turned 18 two days before passing the test. “Everything was ready for Rally GB, with so many people coming. Can you imagine if I failed?"

Most of all, he would have let down his dad, as Petter and Oliver were competing in the same team to mark this historic occasion, each driving a Volkswagen Polo R5.

While it’s well-known that having a famous surname is often a mixed blessing in motor sport, Oliver soon put the position in perspective. "I got a lot of help from my dad,” he notes. "Not just giving me advice about what to do, but also about what not to do. I learn from his mistakes as well as not to make them myself, which is really useful.”

SUBARU CONNECTION

One area in which Oliver’s definitely followed in Petter’s footsteps is driving for Subaru: that team that Petter made up his own, winning the last WRC title for the sub-

It’s true that I deliberately set out to do what my dad did, but the opportunity in Motorsport came up, I thought that it was a great chance to get more experience of different cars and surfaces,” says Oliver. “I must admit though, that being on my own for the first time ever, I would feel a bit emotional. Definitely felt like a special moment, a real link to the story of my dad.”

The path that Oliver has to take in order to make him a real star, as him. And with Kalle rumoured to have already

Rovanperä: in fact with the same team and car at hand. And with Kalle rumoured to have already secured a factory WRC seat at Toyota next year - aged only 19 – this is where the real comparisons are going to be made in future, as Oliver is only too well aware. Indeed, he brings the subject of Kalle up himself.

"Of course Kalle is a great driver and a big talent,” he points out. "We know each other and I would say we’re friends, but we’re not really close: we just speak from time to time. We do each our own thing and that’s absolutely fine. Hopefully we can have some good battles and that some young drivers are coming through now really good for the sport."

While Petter bowed out with an emotional WRC send-off, Subaru are determined to make sure their dream debut Oliver had hoped for ongoing to problems only. But at least he made it to Wales, which was looking doubtful. In fact, Oliver had stepped out of a car before.

‘For me, it was all about rallying right from the start. It was my dream for as long as I can remember’
Under a new FIA standard, from two old zero old two old zero old race suits must be able to withstand direct flame for at least one old two old seconds.

With its new protective clothing standard, the FIA is making racewear safer, stronger and able to contend with the most challenging environments.

At the 2018 Punta Del Este E-Prix Audi driver Lucas Di Grassi was fined €1,000 and given three penalty points on his racing licence for not wearing the correct fireproof underwear. Some observers claimed that the penalty was harsh but Di Grassi immediately accepted it. "It was a mistake on my part," he said at the time. "It was a decision that I took today because of the extreme heat and I ran out of underwear, and I didn’t think this would be an issue. But of course I must be aware that I should wear compliance kit during a race.

There is a reason Di Grassi didn’t protest the penalty when others around him did – he knows these rules are there for the safety of him and his fellow drivers.

From 2020, all drivers in Formula E (Season 6), Formula One, the World Rally Championship (Priority driver and co-driver) and World Endurance Championship (season 2020-22) will have to pay more attention to what they wear.
The FIA has released a new Protective Clothing Standard (8866-2019) which will be mandatory for drivers in these championships, and for Formula 2, World Rallycross and the FIA World Cup for Cross Country events from 2021.

This means that drivers can only wear clothing made from materials that have been homologated under the new standard developed by the FIA alongside leading racewear manufacturers to ensure the highest levels of safety.

In previous years, drivers would wear heavy, bulky suits, but in recent years they have moved to more advanced materials such as Flames – a lightweight aramid fibre solution. These used to be homologated under the 8866-2000 standard, published 18 years ago, but the new update has necessitated a major upgrade in all racewear.

The strict design requirements that each garment must adhere to are part of what makes the standard rigorous, which is why each piece of protective clothing is subjected to these tests. The HTI test stipulates that a driver’s suit must withstand a direct flame for a minimum of ten seconds, while the underwear, socks and balaclava must withstand a minimum of five seconds, the shoes ten seconds, and the gloves ten seconds with evaporation of the palm which must withstand eight seconds.

This has proved a major challenge for the manufacturer. Nico Bazzetti, Quality Manager at racewear manufacturer Alpinestars, explains: “The HTI test on the drivers’ suits was the most challenging of the tests we experienced. We had to ensure that the suit was able to meet the more rigorous standard while still keeping the same low weight, by continuing to develop new materials, and ensuring that they still delivered the same high levels of breathability for which we are known.”

Modern race suits are light and breathable to improve the comfort and safety of drivers in the car. The dilemma was how to maintain this while meeting the new tougher standards.

“If the overall is too thick the drivers may start getting fatigued because of the lower breathability level of the garment,” explains Costa. “But it is more about the knitting of the material, not so much about the type of material used now.”

The new FIA Standard offers several relevant changes to the fabric and transmissions on the overalls and gloves, for underwear, balaclavas and shoes as well.

The problem we had with the previous standard is that while we were doing heat transmission on the overalls and gloves, for underwear, balaclavas, socks and shoes we only had a requirement with the density of the material,” explains Costa. “Along the years the drivers started to wear materials better adjusted to the body for comfort, so density was not relevant anymore.”

“The test on drivers’ suits was challenging. The suit had to meet the new standard while still having the same materials, weight and breathability’

This was key when transitioning from the previous standard, to help protect drivers against direct flames and second-degree burns.

“The problem we had with the previous standard is that while we were doing heat transmission on the overalls and gloves, for underwear, balaclavas, socks and shoes we only had a requirement with the density of the material,” explains Costa. “Along the years the drivers started to wear materials better adjusted to the body for comfort, so density was not relevant anymore.”

“The move away from using dense materials in favour of slim-fitting race suits is partially down to how they make the underwear, explains Costa. “We are stretching the materials to improve the comfort and safety of drivers in the car. The dilemma was how to maintain this while meeting the new tougher standards.

“If the overalls are too thick the drivers may start getting fatigued because of the lower breathability level of the garment,” explains Costa. “That is why comfort is so important, the overall need to be still wearable for the type of events that we have in FIA championships.”

As racing drivers are competing at high speed in a precision environment they can often feel even the slightest bit of discomfort in the cockpit. This is why Alpinestars works with drivers to provide bespoke clothing to manage this.
"Often the driver’s body shape and the structure of the seat causes discomfort, so we will move the position of a seam by 0.1 or 0.2mm to combat this," explains Buzzatti. "We also make the suit extremely breathable by incorporating honeycomb-structured pages and where possible, strategically positioned stretch panels located in the lower back, crotch, and underarm areas which provides more freedom of movement."

These demands can be slightly different for rally drivers because they often work on the car during stages, spending a large amount of time leaning over or even laying on the floor which can be a rough and dirty surface.

"The main focus for Alpinestars is to ensure that a suit will be as flexible as possible for rally drivers," says Buzzatti. "Our WRC crotchet balaclava must withstand a direct flame for a maximum of six seconds, while the underwear, socks and gloves must withstand a maximum of nine seconds. We allow it six seconds, and gloves losses in the combustion of the palm which must withstand eight seconds."

"There should be a relaxed attitude towards protective clothing. The new standard gives drivers access to the safest race suits they’ve ever worn, with a minor cost increase, and their improvements demonstrate how the FIA is constantly evolving safety research in these areas."

Manufacturers have already homologated a number of products to the new standards at the FIA. Alpinestars is the first manufacturer to have passed the tests for all of its pro-level racewear products.

"Until now there wasn’t standard requirements to approve products that reduce the loads transmitted to the neck while removing the helmet,” says Costa. “For that reason, the FIA Medical Commission asked the safety department to come up with design requirements and performance assessments!"

Even though fires are not usually a site seen in rally driving, Alpinestars’ glove is tested.

“Often the driver’s body shape and the structure of the seat causes discomfort, so we move a seam by 1-2mm’

Leading supply chain, transport and logistics company, Eddie Stobart, is a proud supplier to the Federation Internationale de l’Automobile.

Championing many of the same core values, including a high focus on road safety standards and sustainability, Eddie Stobart will work closely with the FIA to deliver key logistical goals.

A dedicated Special Operations team at Eddie Stobart, consisting of 260 employees at peak period, is working around the clock to deliver both logistics and technical services for the FIA Formula One World Championship: 2018 season, providing the highest levels of security, agility and accuracy.

The team has a wealth of experience to help the FIA fulfil essential services for motorsports top named brands. These services include:

- Race team logistics
- Moterhome logistics
- Maintenance support
- Motorhome build
- Garage build
- Temperature controlled storage
Thanks to smart technology and shared mobility, the way we navigate our congested cities is set to become easier, greener and cleaner in the future. And government organisations, public and private transport companies, car manufacturers and mobility clubs are all embracing the transformation.
Ride sharing, personal e-mobility, big data, automation — an explosion of new technologies is leading to a fundamental shift in the way we navigate our cities and the rise of what has been dubbed Mobility as a Service. But what exactly does that entail and how close are we to truly integrated travel networks? AUTO investigates.

It’s a pattern followed by millions of people in thousands of cities around the world, a daily commute that involves climbing behind the wheel of a privately-owned vehicle and driving through dense and unpredictable traffic to a train or bus station, where parking may or may not be available and at which train or bus timetables are often frustratingly fluid. And finally, once ejected from public transport, there’s an inevitable ‘final-mile’ slog before arriving at a chosen destination. The exchange of the morning and evening commute has been the bane of city dwellers for as long as industrialized cities have required travelers to journey from outlying residential bolts to centralized business districts, and for as long urban traffic has evoked multiple complaints of independent scheduled transport.

The paradigm, though, is changing. The advent of smartphone technology and the connectivity mobile devices have provided has led to the rise of a new concept of urban transit, one where platforms of transport modes are intertwined, creating the tantalizing prospect of a seamless journey that is not only more efficient but which also has the potential to transform the urban landscape in which we live. Welcome to the world of Mobility as a Service, or Maas.

“Mobility as a Service is the aggregation of multiple mobility services into a single, on-demand point of access,” explains IATF-Secretary General for Automobile Mobility and Tourism, Andrew McNab. “Through the use of a mobile application and single payment channel, a Mobility platform can put consumer and service provider together, streamlining choice in transport options.”

In essence, MaaS has the potential to significantly alter the mobility landscape by catering to all transport tastes and demands, be that for public transport, micro-mobility, or ride sharing.

David Zipper of urban development hub CityLab and a Visiting Fellow at the Harvard Kennedy School’s Taubman Center for State and Local Government adds that the development of MaaS has a variety of potential benefits. “If MaaS can be fully delivered, the benefits are clear — less driving, less congestion, the reclamation of public space, increased safety on roads and decreased pollution.”

WORKING TOGETHER

At its core, MaaS relies on a digital platform, an app that integrates end-to-end trip planning, booking, electronic ticketing and payment services. It’s a marketed departure from where most cities are today, and from how mobility has been delivered until now.

However, building such systems relies on a number of factors including widespread availability of 4G and 5G networks, secure, real-time information on travel options, schedules and updates, and contactless payment systems.

To enable these conditions a diverse range of agencies need to co-operate. These include public transportation providers such as Uber and Lyft, public transport operators, local authorities with responsibility for transportation and city planning, telecoms operators and payment processors.

All of these major players co-exist within the transportation systems of big cities, but so yet they frequently operate in silos, with ride share and on-demand services running in direct competition with public mass transit systems. Stitching the necessary public/private partnerships together is a process fraught with difficulty.

“MaaS has the potential to significantly alter the mobility landscape by catering to all transport tastes and demands”
The growth of Mobility as a Service has relied on the open road. We are two and a half months away from a real MaaS platform. “It will be fully comprehensive and integrated into the system when we get rid of the operator. “We are still not level five [a fully autonomous system in which the vehicle’s performance equals that of a human driver], we are at level four,” says Corin of vehicles that are designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip, through the use of a defined ‘operational design domain.’ “It will be fully comprehensive and integrated into the system when we get rid of the operator. To do this, we need to enhance our technology and we need safety engineers,” notes Corin. “It is important to monitor the quality of service the operator provides.”

“If I look forward to an urban centre of five years in the future, I think physically it could look quite different because you’re going to see a large amount of space that would today be allocated towards streets converted to other modes,” says Zipper. “It could be to sidewalks, cafes, it could be parks and areas for children to play, and the space that is used for people in a more pedestrian-friendly way.”

“Those modes are going to reclaim a lot of space in cities and the question of how you communicate to work, which has been answered in one way for 150 years – you drive or you take public transit or you walk – will become increasingly absurd because people are going to mix up what they do together much more than they have in the past. It’s not a question of what drive or walk, we’ll increasingly use urban space in a more pedestrian-friendly way.”

FIA Secretary General Andrew McKellar concludes: “The speed, depth and breadth of change we are witnessing in the mobility and transport sector is set to have a profound effect on the way we live, with much talk about automation and the use of algorithms to optimise systems, we will transform the way we get around.”

“MaaS is an innovative, real-world example of how data is changing mobility. Real time analytics and intelligent transport systems all feed by user data, often derived from mobility service applications. To this information, we are adding ‘real-time’ data from the folks’ season of a safer, more sustainable and more accessible mobility future.”
Since November 2017 residents of Helsinki, in Finland, have had access to a service called Whim, an app they can download to their phone to plan and pay for all modes of public and private transport within the city. It combines trains, buses, taxis, car-rentals and bicycle hire services with route planning and payment options all in one convenient place.

Anyone with the app can enter a destination, select their preferred mode of getting there and simply go. Users can either pay for the services as part of a monthly subscription or pay as they go using an account linked to the service, the end goal being to make it convenient for people to get around the city.

The brains behind the service, Samp-Silenius, says the app is designed to make people think of alternatives to their personal cars. “We want to prove that we can beat the service level of a car, or at least be comparable to it,” he explains.

Much like how Netflix changed the way we pay and consume media, Whim represents a new way of thinking about transport. Mobility as a Service (MaaS). Rather than having to locate, book and pay for each mode of transportation separately, MaaS platform lets users have an account and book door-to-door trips using a single app.

The deployment of these apps in big cities has become more popular since the success of Whim, with many automotive clubs and transport companies offering similar alternatives. It has also seen the creation of the MaaS Alliance, a partnership between public and private companies which aims to create the foundations for a common approach to MaaS across Europe from a legal, technical and market perspective.

The main fronts of the Alliance’s activities are to drive the technical interoperability of mobility services and MaaS solutions, exchange knowledge about the promising business and governance models, and advocate for the right regulatory framework for MaaS and multimodal transport services,” says Bangsgaard. “Eventually all these aspects support scalability of MaaS solutions as complimentary to its vision of having an on-demand mobility service that globally connects people to the existing public transport infrastructure. The technical interoperability of how these services work is one of the key methods the MaaS Alliance is using to advance uptake, which would enable a seamless way of paying from one city to the next.”

“Urban population is expected to exceed 7 billion people by 2050 and 66% of the global population is expected to reside in urban areas,” says Barry Croke, Head of Foresight for TfL. “This is putting a lot of pressure on cities to provide more sustainable transport options.”

Transport integration

With cities becoming more gridlocked around the world and governments looking to reduce the amount of pollution created, MaaS offers a new way of tackling congestion using existing applications. Rather than cities building more road infrastructure to help cope with the increasing number of people living and commuting within them, MaaS builds on the existing transport infrastructure to provide people with alternatives. “One of the most relevant added values of MaaS solutions is big cities’ integration with the public transport system, which improves their efficiency,” says Bangsgaard. “MaaS encourages customers to experience alternatives like shared mobility services and this positively reflects on the environment.”

In the last few years, journey planning apps that enable users to identify and compare different transport options to get to their destinations have become more commonplace, and as a result, many city transport operators have increasingly embraced new mobility options and apps over the last decade. For example, Uber and Lyft have been divided in Europe, rising from five million in 2016 to 16 million in 2018 according to a report from Dutch banking group ING. While more than 1.2 million public bike share schemes operate in 50 countries. Ride-hailing services such as Uber and Lyft have also seen similar rapid growth, with Uber reaching 7 million registered users in 2017 and expanding to 50 cities in over 50 countries in six years of operation. “For a MaaS Alliance member and I’ve seen as complimentary to its vision of having an on-demand mobility service that globally connects people to the existing public transport infrastructure. The technical interoperability of how these services work is one of the key methods the MaaS Alliance is using to advance uptake, which would enable a seamless way of paying from one city to the next.”

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“We want to prove that we can beat the service level of a car, or at least be comparable to it’
Infrastructure continues to evolve, the technology says Giese. “In addition, as MaaS develops, more will result in more attractive and equitable options,” previously afford individual vehicles. promotes the idea of shared transportation for cities provide a system that not only supports but extends beyond the affordability barrier. This ensures that the group gets the lowest fare all the time – much like a discount on transport, they don’t have access to the same transport, because anywhere in the world becomes a universal ticketing arrangement if you use a TfL system, because anywhere in the world and have found that each of the city centre solutions; how mobility solutions within the city.”

This is where the element of social equity comes into play with the Oyster system, as some operators offer a monthly or yearly season ticket at a set price and that gives the user is discount. According to Macbeth, the problem with those arrangements is that it’s only accessible to people on high incomes or who have access to cheap loan facilities through their employees. The Oyster system guarantees that everybody in any income group gets the lowest fare at the time – much like the way that Siemens operators work. "TfL already gets the cheapest possible rates from the banks," says Macbeth. "When a MaaS operator comes back and says we can give you a discount on transport, they don’t have access to the rates that we do, which is tricky to overcome." But although Siemens operators are leading the dramatic changes to the urban transport landscape, Siemens believes that it is important for MaaS solutions to move beyond the affordability barrier. This ensures that cities provide a system that not only supports but also promotes the idea of shared transportation for everyone, especially to those who could not previously afford individual vehicles.

For those cities, instead of facing to travel on public transport systems that may result in long and complicated journeys, shifting the overall focus away from roads and private cars should result in more attractive and equitable options,” says Giese. "In addition, as MaaS develops, more autonomous technologies emerge and smarter infrastructure continues to evolve, the technology is anticipated to significantly reduce road crashes."

**POSSIBLE ROADBLOCKS**

Most cities will have varying priorities for implementing MaaS Solutions, which will be based on their culture, geographic character and numerous other factors. This is one of the areas where Siemens is working on with the FIA and cities, to decide which objectives cities need to achieve and then find the right technology and policy solutions to meet them.

"With the FIA, we have spoken with a few clubs around the world and have found that each of the cities have very different priorities for mobility,” says Giese. "Toronto, for example, is focused on reducing congestion for vehicles in the downtown core and would like to evaluate the impacts of more shared car services and bicycle use, while Singapore wants to improve mobility and safety for its citizens, and is looking at a lot of micro mobility solutions within the city.”

Safety is one of the key issues for MaaS solutions being implemented moving forward, as transportation technologies evolve rapidly. According to Giese, this is one of the gaps from a traffic engineering point of view where technology companies have a solution, but cities are reluctant to implement it straight away.

"There is some chaos and lack of consensus on how new technologies should be implemented and integrated into the city environment,” says Giese. "We’re starting to see private companies such as transportation networks wanting to take off running, and develop and implement systems as soon as they down their technology is ready.

"Their primary aim is the success of their business model. City agencies, on the other hand, are responsible for the safety of their citizens, and have a responsibility to monitor the entire system and are rightfully hesitant to allow them to do so without understanding the risks.”

The trials and tribulations of Uber in big cities are well-documented, and even though the company has a healthy growth in user numbers, it is facing increased scrutiny over the safety of the service.

This is a key point because accelerating MaaS is not just about business models – aspects like liability frameworks, passenger rights, protection and privacy safety need to be clearly defined. This is an area where FIA automotive clubs benefit from their consumer protection, explains Bangsgaard. "Clubs are also consumer protection organisations, so ‘user-centricity’ is in their DNA. For that reason, the FIA is an important member of the MaaS Alliance.”

This consumer protection aspect is what separates the automotive clubs’ interests from the big tech companies, as Google and Amazon start to become players in the industry. At these large tech companies offer more services that can gather data on consumers, MaaS is playing in that wider context of whether people want executive decisions about their transport being made by big tech companies.

Macbeth believes that this could be one of the challenges that cities face in the long term as technology develops beyond interacting with a screen, and services such as voice recognition and wearables start to become used more widely to access these services.

"Are they going to have the technical capabilities to respond to those changes in customer interface?” asks Macbeth. "It may well be that people are so used to voice activation in the home and also the technology if it will become the default application to access public transport or MaaS services. And if you’re not up to scratch on that, do the consumers who part of the operation to somebody who can do that for them?”

New and upcoming concepts will also start to bring MaaS solutions to areas outside consumer apps, which will focus more on the movement of goods-in-urban areas, according to Bangsgaard.

"In addition to benefiting people, the MaaS concept can be equally applied in freight and logistics where it can contribute to the efficiency of the transport of goods across Europe,” says Bangsgaard. "New emerging and developing concepts and technology need to be further harnessed into account, for example e-mobility, drones and automated vehicles, which have great potential to add to the sustainable aspect of MaaS.”

Even though there will be resistance from both public and private sectors during MaaS’ progress, pioneering such as the MaaS Alliance, together with smart mobility company Siemens, are leading the dramatic changes to the urban transport landscape. 

"What that means is that contactless then becomes a universal ticketing arrangement if you use a TFL system, because anywhere in the world and as long as you have the funds it works. “Perhaps the bit that isn’t understood is the back office transactions that happen, in that TFL guarantee to charge you the lowest possible fee. As long as you touch in and touch out each time you make a trip throughout the day, it will cap that over a 24 hour period to the price of the cheapest travel card.”

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SHARING MOBILITY

As cities around the world look for ways to cut congestion, automobile clubs are developing solutions to stay competitive and relevant to consumers.

Despite the caveat, a number of clubs are already embracing the change. The Royal Dutch Automobile Club (KNMV) has established the Dutch Mobility Alliance, which aims to keep the Netherlands accessible by advocating for more investment in mobility. The Alliance already has the support of 23 organisations and MaaS is one of the solutions that is in its ‘Mobility Vision’ for the future. “Mobility is changing very rapidly, especially in cities,” says Ferry Smith, ANWB Director of International Affairs. “We simply need MaaS solutions because with the increase of population in the cities, a lack of space will force us to use the available space in an efficient way.”

The Royal Automobile Club of Catalonia (RACC) is combating this space problem in big cities in Spain, offering a MaaS app called CityTrips, which provides consumers with access to all shared mobility services such as bikes, scooters, mopeds, cars and public transport. Customers plan their journey, combining all modes of transport to see which is the most time-efficient, method and least expensive.

“CityTrips was conceived to improve mobility in urban environments,” says Miguel Roca, RACC Innovation Projects Director. “It promotes, populates and facilitates user access and discovery of alternative forms of shared transport. It is the solution with the broadest range of mobility options.”

After launching in Barcelona last year, CityTrips has already expanded to Madrid and Valencia and gained over 60,000 users, alongside attention from the MaaS Alliance which named it the ‘MaaS of the Month’ in September.

According to Roca, one of the reasons why the RACC decided to introduce the app is because of the move away from being solely automobile clubs and becoming ‘Mobility Clubs’ that respond to the global trend of consumers increasingly demanding more ‘as a service’ products. “The effects of congestion, emissions and urbanisation lead to an increasingly unsustainable mobility model as we know it today,” explains Roca. “Therefore, it is necessary to transform the way we move in our cities to become more sustainable, more efficient, cleaner and healthier.

‘Arevo demonstrates to members that the RACV has a legitimate voice in the future of mobility and enables us to evolve’

The advantage of an app like CityTrip instead of using Google or Apple Maps is that it combines different transport apps all in one place, negating the need to switch between them. This can be advantageous for tourists, which is one of the user segments CityTrip intends to address. “When arriving at a new city, one of the first points a tourist has to face is understanding how best to move around the city,” says Roca. “In this respect, the fragmentation of services is something that can be mitigated by CityTrip.”

A similar concept called Arevo journey planner was introduced in Australia by the Royal Automobile Club of Victoria (RACV). Users can plan their journey on a range of private and public transport services which make it easier for people in Melbourne to get around. They can also set preferences when planning their routes across the city to be either the most convenient, most economical, or most environmentally friendly to a destination.

Since launching in February earlier this year the app has already reached more than 60,000 users. According to RACV General Manager, Elizabeth Kim, part of this success has been down to the trust that the public has in the automobile club.
"With Arevo, RACV leverages our trusted voice in the Victorian community to demonstrate the myriad ways of getting around, with long-term ambitions to alleviate congestion and encourage smarter use of private transport,” says Kim. “It demonstrates to members that we have a legitimate voice in the future of mobility and enables us to continue to evolve.”

CONFIDENCE FOR CONSUMERS
This established level of trust that comes with clubs associating themselves with a service is one of the advantages that they will have in the MaaS space, because by nature they are protecting the consumers’ rights and therefore not solely looking to make a business model work like other companies would.

“Clubs hold a privileged position to embrace this opportunity, leveraging on a strong, well-known and reliable brand, good institutional relations with local administrations and policy makers,” explains Roca. “Uber, Lyft and similar apps have a ‘walled garden’ approach, where included mobility services are all owned by the same operator, thus excluding other services.

“Yes, you can set preferences when planning your routes for them to be the most convenient, economical or environmentally friendly.”

There is also scope for clubs to enter partnerships, which is something the RACC is doing as part of its geographical expansion approach. This joint approach is helping accelerate the MaaS opportunities for clubs and generate economies of scale on the supply and demand side.

“CityTrips has been conceived, by design, to be scalable to grow and integrate mobility services in more cities, in Spain and other countries,” explains Roca. “This is an attractive proposition for clubs, which can offer innovative services and be more competitive in the market.”

While this approach enables more clubs to determine how best they can implement MaaS solutions into their city, ANWB’s Smith believes it will depend on the current mobility situation in which the club operates.

“In some countries there are other challenges that have to be taken care of, so there is no ‘one size fits all’ approach to this,” says Smith. “The basis of an efficient MaaS system is the availability of mobility data. Integrating mobility data from many stakeholders is a real challenge. You have to build trust and develop an eco-system that guarantees the interests of all involved. That’s the phase we’re in today.”

With MaaS gaining support among sector players, ensuring that each offering has a sustainable business model will be the biggest challenge.

“Several business models are being considered and tested, subscription models being one of the most promising,” says Roca. “At this stage, it is unclear which is going to be the right business model and who will be the relevant players. Collaboration between public and private entities will be key to success in any case. It is important for clubs to investigate and advance in this area to keep relevance in the mobility space.”

In Melbourne, the RACV’s Arevo app allows users to plan their journey on a range private and public transport services, including the city’s trams.
BREAK WITH TRADITION

A changing society is altering our relationship with the car and forcing car makers to reassess their relationship with their customers. Will we still aspire to car ownership 20 years from now—or is the rise of Mobility as a Service rendering the traditional model of motor manufacturers obsolete?

Car keys or app? The question reads like a non sequitur, but it isn’t. These are interesting times for the automotive industry. While the last quarter of a century has witnessed unprecedented change in car technology, the traditional driving experience has not dramatically altered. Indeed, one could argue that, despite some shading around the edges, the model of car use and, by extension, car ownership has seen little movement since the 1980s. It is dramatically altered. Indeed, one could argue that, despite some shading around the edges, the model of car use and, by extension, car ownership has seen little movement since the 1980s. It promises to be an interesting battle. The response from the automotive industry to this particular challenge has been to dive in, seizing the belief that its understanding of vehicle engineering will ultimately out-compete the technology industry’s expertise in connectivity.

Fundamentally change society, the role of cars and car mobility behaviour moves forward. A new kind of individual traffic using robot taxis might be an exception. For example, they could potentially make traffic more efficient by maximizing vehicle capacity utilization. At the same time, it would require less space for parking and reduce the time each car spends idle. Why should cars only be used for 50 per cent of their service life? They could also be used for 70 per cent of that time. That will open new business models in the future. Maybe down the road Audi will also sell autonomous drivers per hour.

While autonomy is the biggest game in town for the automotive industry, the popularity of ride-sharing apps such as Uber and Lyft has not gone unnoticed. A synthesis of the two concepts, the so-called ‘robo-taxi’ hovers on the horizon. As Carlo van de Weijer, director of the Strategic Area Smart Mobility at Eindhoven University of Technology, says, “Tomorrow’s cities don’t need driverless cars; they need carless drivers.”

The last few years have seen a wave of investment and joint ventures from traditional car manufacturers, keen to hedge their bets with a slice of the nascent Mobility as a Service market—a changing urban environment and social demographics, private ownership of cars no longer has an across-the-board appeal. While the industry has yet to reach an assumed point of maximum production output growth has slowed, and strong demand in emerging economies masks a stagnation in traditional car-buying markets. Car ownership isn’t about to go the way of the fax machine or the super-old camera—nor has an across-the-board appeal. While the industry has yet to reach an assumed point of maximum production overall growth has slowed, and strong demand in emerging economies masks a stagnation in traditional car-buying markets. Car ownership isn’t about to go the way of the fax machine or the super-old camera—nor has an across-the-board appeal. While the industry has yet to reach an assumed point of maximum production overall growth has slowed, and strong demand in emerging economies masks a stagnation in traditional car-buying markets.
These are very much early days for the us to maximise our chances in a growing market, a key cornerstone in our strategy as a mobility service portfolio with an all-electric, self-driving ever more closely to form a single mobility have a clear vision: these five services will merge scooters, car charging and car sharing. Covering autonomy, ride-hailing, electric segment, the two car makers are investing more and BMW. Traditionally rivals in the luxury

One such joint venture announced this year was the mobility assets by Quandt and Miller. Traditionally made in the luxury segment, the two car makers are investing more than $1 billion across five mobility projects covering autonomy, ride-hailing, electric scooters, car charging and car sharing. The Electric Four wheels we already have today will benefit from a seamlessly integrated, sustainable ecosystem of charging, ride-hailing, parking, charging and mobile transportation services, and friend Kirill, managing Director of BMW at the projects launch. “We have a clear vision: these five services will merge over more than a single mobility service portfolio with all-electric, self-driving fleet of vehicles that charge and park autonomously and interconnect with the other modes of transport. The same portfolio will be a key cornerstone in our strategy as a mobility provider. The co-operation in the perfect way for us to maximise our chances in a growing market, while sharing the investments.”

AUTONOMOUS LAB

These are very much early days for the automotive industry to push into Mobility as a Service, filled with experimental operations and demonstrations of new technology but little in the way of deployable services. Within the automotive industry, the focus is on the electric cars to operate autonomously. Interestingly, Renault is about to start work on a project that looks more than the transportation technology, also finding the social aspects of Mobility as a Service. Emphasising the sharing aspect of Maas, the controlling algorithm may stop for extra passengers, users can get on or off the Zim scooter that will control use, opening car doors with a swipe. Volvo, however, is keen to suggest that M is more simply a more convenient model of car rental, or a competitor for Uber or Lyft. "The services currently available mainly offer alternatives to a taxi or public transit," says Bodin Häkkinen, CEO of Volos Car Mobility. "We focused on the way people use the cars they want, which type of trip. We strive to provide a real alternative to that experience. It should enable us to be used in any context, getting things done and making travel even more convenient and make cities greater and more pleasant spaces."

Both Volvo’s M scheme and Renault’s trials use similar to mobile phone contracts, with different cost for various tiers of service. Renault’s project seeks to look to its traditional sales and similar to a social concept. One could argue that the energy sector and health care are the perfect place in the process that is contained within the app. Volvo launched its first 300 Zim scooters in 2018, partnered with FatFace. Surfaced is a station-based sharing scheme with more than 300 scooters scattered around London. Since, ‘with two decades of data from that service, Volvo has to launch M, its app-based successor, following a beta test over the summer, launched the first up and in the London Docklands area at the end of September. Using the electric scooter like a car, it offers subscriptions by the journey and the possibility of pick-up spots on-street during peak periods. Volvo’s research suggests that people are used to using a mobile phone or a smartphone for their daily activities. A smartphone for a car is nothing new and is already in the possession of many people. M is part of our vision. We are evolving to be a service company and stakeholders in our new reason 'Freedom to Move.'"

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"Volvo is becoming more than just a car manufacturer touts as the first purpose-designed vehicle for shared mobility services. Like most Mobility as a Service projects, M is very clear that the target market is overwhelmingly urban. In a recent report, the Population Division of the UN Department of Economic and Social Affairs projected a rapid increase in urban density over the next 30 years. The Revision of World Urbanization Prospects study forecasts that by 2050, 60% of the world population will live in urban areas, up from 53% in 2015, potentially adding 15%. Urban residents by 2050. Given the possibility, it’s very difficult to say where demand for an alternative to car ownership is going to be greatest. By using a quality of layout and scalability, SEAT reduced its 2-seater vehicle’s physical footprint to 1.30, approximately half that of a normal city car. It features the high-rewarded position popular with urban drivers, but also has four-pointed front doors, designed to allow easy access and egress."

The electric powertrain fits in a model that uses urban areas serving polling vehicles to the near future. Meanwhile, Ford has worked on the Mobility as a Service aspects of that with successfully tested a parks, covering the type of heavy utilisation not generally seen in private cars. A production version of the vehicle is set to launch in 2021 and while this will be a dawn vehicle, SEAT has already platform ready for full autonomy.

The industry is adapting to changes in the way consumers view personal transport,” says SEAT president Lucas De Meo: “With the Mimo, the return of our first product designed to purpose, SEAT is addressing these challenges, combining autonomy and driving technologies with electric powertrain systems to create the future of urban mobility.”

While every car maker talks loudly about the potential of Mobility as a Service, the Whether the goal in the room is to that, ultimately, it means a dramatic downsizing of the global car fleet. For an industry based around economies-of-scale, this doesn’t necessarily imply that every individual has to change on the planet. In 2017, the number of urban residents has increased, but fewer could mean a consolidation in which there are fewer car makers. Making this scenario happen would mean the conversion of the preferred path for urban transportation – on-demand hailing services - to the one with the only the best and brightest that survive.

Top: BMW and Daimler team up to try out a €7bn jointly owned venture in a €3bn joint urban mobility project, a European venture of mobility start-ups that is leading the charge. From left to right: 库尔特·艾森豪威尔 and Bruno Frick, CEO of BMW Group Mobility and John Krafcik, CEO of Waymo. "We are evolving to be a service company and stakeholders in our new reason 'Freedom to Move.'"
Matching the pace of change

Charged with taking heritage brands built for speed and utility into the next generation of mobility, Jaguar Land Rover CEO Ralf Speth has focused on innovation and experimentation. The results have been challenging but ultimately rewarding and hugely popular.

When one thinks of the consistent power of Jaguar and Land Rover, the former marque’s strengths lie in its mix of pace and luxury, while the latter is defined by adherence to an aesthetic strength in its mix of pace and luxury, while the latter is defined by adherence to an aesthetic

"One of the best ways to innovate is to get people from different backgrounds to work together. Bringing together designers, engineers and purchasing people means you get better quality and get the product on the market quicker."

Speth’s arrival signalled the group’s determination to change, as it invested in new technology to the tune of £2 billion. The technological shift came at a price, however, with volumes being cut and staff being shed. Both were difficult decisions but according to Speth were crucial “in order to safeguard our future and ensure we are able to maximise the opportunity created by the growing demand for autonomous, electric and shared technology cars.”

Furthermore, to guarantee a future for both brands, it was necessary to enter into partnerships within the industry due to the enormous cost of developing cleaner engines and pursuing electrification. Again, the financial toll has been heavy with the group posting a US$4.2 billion loss at the start of this year due to a drop in demand for SUVs in China and strict regulations on emissions impacting sales of diesel cars.

BRAVE NEW WORLD

Speth announced a partnership with BMW to create the next generation of electric motors. The agreement makes provision for the sharing of development costs for the new 4Drive motor assembly forces in the way allows Jaguar Land Rover to reduce the costs of designing, producing and getting to market these low-emission power units for their models. The partnership could actually be extended to included diesel, petrol and hybrid engines.

Speth’s interest in electrification stems from the ever more stringent CO2 emissions regulations imposed by the EU and it led to the announcement of a new strategy, which has produced cars of a type not seen before such as the Jaguar I-Pace, the first electric car in the history of the British manufacturer.

The I-Pace was presented as a concept at the 2016 Los Angeles Motor Show and went into production in 2018. The new car won a number of major awards including 2019 Car of the Year and World Car of the Year 2019.

Jaguar’s first electric car, the I-Pace, received global recognition after going into production in 2018.
The British company has been competing in the Electric Formula E Championship since the 2016-2017 season in collaboration with Williams Engineering, under the name of Panasonic Jaguar Racing.

In 2018, it also launched the Jaguar I-Pace Trophy, a one-make series for 10 drivers that runs at Formula E events. There’s an extreme version of the I-Pace in the pipeline designed by the company’s Special Vehicle Operations. The word from headquarters is that it will definitely be built.

“It’s not a case of if, but when.”

These race series serve as a test bed for the management and potential problems of running an electric power unit.

“Thanks to these challenges, we have managed to increase our knowledge of accumulators, cooling systems and management software and we continue to learn,” said Speth.

“Today, we are preparing for tomorrow. Our intention is to go for sustainable and intelligent mobility. We have to create a safer and better world for everyone.”

The development is part of JLR’s Destination Zero plan. “We want to eliminate CO2 emissions during the production phase of every model and gradually move away from combustion engines to hybrid units and then electric ones,” said Speth at this year’s Frankfurt Motor Show.

And the strategy goes further. “The new Jaguar XJ, the company’s historic flagship model, will also be 100 per cent electric. It’s a decision taken with China in mind, where saloon cars are popular in what is the world’s biggest market for zero-emission cars.

“The XJ has always been known for its elegance and sporty drive and the next generation will feature an electric power unit that will make it even more responsive, comfortable and kind on the environment,” says Speth.

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“We’re also working on eliminating accidents with the new assisted driving technologies. Our aim is to make the world we live in safer and healthier,” adds Speth.

Together, we can offer an attractive, fashionable SUVs.

According to reports, the rise of autonomous, spacious and ecological cars.

“With the Jaguar I-Pace, we have designed a car that produces software for driverless cars.

“When it comes to autonomous cars, the German CEO has formed a strategic partnership with Waymo, the US-based Alphabet company that produces software for driverless cars.

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“Starting next year, every new Jaguar Land Rover model will feature a battery-powered version,” confirms Speth. “Customers will be able to choose a pure electric model, or a hybrid plug-in or hybrid, as well as traditional combustion engines with much reduced consumption and emission figures.”

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“#28

The Jaguar Land Rover boss welcomes that internal combustion engines will make way for electric vehicles that are autonomous, connected and shared. “Today’s industrial revolution will be driven by the demand to be carbon neutral, to improve air quality, create less waste and increase ease of use, via automation and innovation. Over the past 10 years, we have halved CO2 emissions for all cars in our range. We are closing the cycle on our use of materials, sure that we can reduce wastefulness, making the best use of precious resource, by getting the most from them and reusing them across all the products in the Jaguar and Land Rover range.”

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CLASH OF THE TITANS

Ahead of Season 6 of the ABB FIA Formula E Championship, AUTO talks to Porsche and Mercedes about joining the series and asks whether the manufacturers that have dominated Formula 1 and the World Endurance Championship can do the same in what’s been called ‘the world’s most unpredictable racing series’...

Porsche motorsport boss Pascal Zurlinden says the new Formula E team has benefitted from the makes’ LMP1 experience...

...While that same team spirit will also transfer to the new series, believes Porsche Motorsport vice-president Fritz Enzinger.

The start of the new ABB FIA Formula E Championship season in Ad Diriyah, Saudi Arabia, on November 22 marks the beginning of a chapter more than two years in the making as two motor sport juggernauts join the all-electric series’ grid.

Mercedes and Porsche announced their plans to enter Formula E within five days of each other in July 2020, aligning with manufacturers such as BMW, Audi, DS, Nissan and Jaguar as the ongoing shift towards electric mobility gathers momentum.

Mercedes has ruled the Formula 1 world for the past six seasons. Porsche conquered the FIA World Endurance Championship and the Le Mans 24 Hours. But can they succeed in a series that has established itself as one of the most competitive championships in global motor sport and which has been branded ‘the world’s most unpredictable racing series’?
The timing of Mercedes’ entry to Formula E is symbolic, won’t set by coincidence. Just weeks after celebrating a record-breaking sixth successive set of Formula 1 title wins, firmly establishing itself as one of the greatest teams in Grand Prix history, it will now embark on a whole new adventure in Formula E, where it is starting back from square one.

Well, almost. The Mercedes-affiliated AMG Racelab squad joined Formula E for Season 1 as a customer of the Venturi team, giving the operation a year to learn before entering into the fully-fledged factory team.

“I think operationally it’s great to have the experience,” says Lat, 2019/2020 Formula E team principal. “But coming as a manufacturer, and especially as a new team into the sport, there’s where we’re going to have a significant challenge on our hands in our inaugural season. There are aspects that we’ve learning from scratch again – and we’ll be learning through the season. How quickly we learn and adapt will be the significant factor in our performance.”

Much of Mercedes’ recent F1 success was rooted in how quickly it adapted to the VB hybrid regulations that were introduced in 2013. The complex power unit was produced by its High Performance Powertrains arm in Brixworth, which has also overseen the development of the Formula E powertrain. In a series that uses spec chassis, the powertrain tends to be the greatest determinant of car performance.

“The initial power unit concepts were developed at Mercedes HPP in 2014, so it’s been a long journey since then,” says James. “We had the first glimpse of the Mercedes Benz Silver Arrow on an a track test in April this year. Since then, we’ve been developing the hardware and software through track, and over the last couple of months it’s about the hardware side of things coming to a conclusion.”

Mercedes is not alone in drawing on its championship-winning experience ahead of the new Formula E season. Porsche’s team is largely operation a year to learn before evolving into a fully-fledged factory team.

“We need to be measured against many of the world’s biggest car manufacturers and independent teams. We need to be measured in our approach to it internally, we’re clear with ourselves, we’re managing expectations for our inaugural season,” says James. “Porsche is taking a similar approach, seeing itself as the ‘new kid on the block’. We are entering a competition with teams and manufacturers who have already been active in the series for up to five years, and therefore have an enormous lead in terms of experience,” says Zurlinden. “This makes it a great challenge.”

The concentration of manufacturers in Formula E is higher than in any other race series. The new season, with six of them taking victory in the first six rounds. Giants such as Audi, Nissan and BMW have all fared well, but struggled to truly dominate. Expectations must therefore be kept in check.

“One thing I’ve learned through observing Formula E is how unpredictable it is – that’s part of its charm,” says James. “At the end of the day, we’re now the field of world-class teams from some of the major OEMs and some strong independent teams. We need to be measured in our approach to it. Internally, we’re clear with ourselves, we’re managing expectations for our inaugural season.”

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Mercedes High Performance Powertrains (HPP), which developed the latest F1 power unit, has also overseen the Formula E power unit.

‘Coming in now as a manufacturer, essentially as a new team, we’re going to have a significant challenge on our hands’
Both manufacturers are committed to producing more electric cars in the future. Mercedes has established its EQ sub-brand, with a target of manufacturing one zero electric models by two zero two zero.

Porsche recently launched its first fully-electric sports car, the Porsche Taycan, as part of its ‘Mission E’ blueprint for electrification.

“Porsche expects its involvement in Formula E to result in synergy effects and vital inspiration for future production models,” explains Zurlinden. “The challenge in Formula E is to achieve maximum efficiency in utilisation of the available energy through the hardware, software and manual management by the driver. The tasks at the race track and on the road are therefore quite similar.”

“It obviously helps when there’s a certain level of authenticity to what we’re doing,” adds James. “It’s a tech transfer that genuinely goes from racing into road cars, or vice-versa. Now that we’ve got the initial power unit development completed and we’re focusing on race readiness for Season six, we’re looking at how we kick off that knowledge transfer. I think once we get that started then you’ll see very quickly the synergy develop and that transfer happening. The fundamentals that underpin the Formula E power unit are the same as those that underpin the road car power unit.”

Following the completion of final collective testing in Valencia in October, attention has turned to the opening race of the Formula E season in Ad Diriyah as the teams’ preparations come to fruition. But Mercedes and Porsche are under no illusions. Replicating their respective F1 and WEC success in motor sports’ most unpredictable series could be their greatest challenge yet.

Porsche hopes to achieve a podium in its ‘rookie’ season of Formula E.
Health and safety

According to the World Health Organisation’s recent Global Status Report on Road Safety, fatalities are continuing to rise. The WHO’s Director General Dr Tedros Adhanom Ghebreyesus says that while efforts to tackle the crisis are working in high-income countries, developing nations are being left behind due to political inaction.

The most recent Global Status Report on Road Safety 2018 indicated that road deaths continue to rise, with an annual 1.35 million fatalities. Developing countries now account for 90% of road deaths – a function of reduced fatalities against increasing population.

The annual number of road traffic fatalities of around 1.35 million remains unacceptably high. These deaths are an inexcusable price to pay for mobility. However, I am hopeful as we are also seeing signs of progress in road safety. Although this total number of deaths has continued to rise, the death rate relative to the increased world population are actually stabilising. This suggests that road safety efforts are having some effect. While we are still not where we should be, I see this as a sign of moving towards progress.

The report noted that efforts in high- and middle-income countries are yielding positive results and mitigating the situation. Is the problem worsening in low-income nations and what are the chief causes of this?

Indeed, the report indicates that no low-income country has reduced its number of road traffic deaths in the last three years. This is a source of great concern. The main reason is lack of political action. As countries develop economically, their road networks rapidly expand and the number of vehicles on the roads increases dramatically. Unfortunately, safety is not always regarded as an integral part of this process. Political leaders should realise that road safety is a good for development. They should take inspiration and learn from countries that have good road safety records. We must make road travel affordable, accessible and sustainable transport for everyone.

Globally, pedestrians and cyclists account for 26 per cent of all road traffic deaths, with that figure as high as 48 per cent in Africa. What are the solutions to this from the WHO’s perspective?

The solutions we propose for vulnerable road users are often the same we propose for all road users. They include better laws and stronger enforcement on major risks like speeding, drinking and driving, and failing to use seat-belts, motorcycle-helmets and child seats. We also advocate for safer roads and vehicles and good emergency trauma care services.

At the same time there should be tailored interventions specifically for pedestrians and cyclists, like dedicated walking and cycling lanes. These must take priority in designing cities and building infrastructure.

The headline news always focuses on the worsening situation, but there were positives highlighted in the report! What do you mean by this?

The report notes there is a lot to be positive about. Road traffic deaths have decreased in 23 middle-income countries and in 25 high-income countries. That progress is huge! These countries have provided greater attention to law enforcement, for example, such as on speeding or drinking and driving – are important, but they can only really succeed when they are well enforced. These countries are also assessing and investing in safer roads and cars to ensure that they meet international standards, at least. And, in parallel, these countries are improving emergency trauma care. All of these interventions combined save lives and reduce serious injuries.

Road safety efforts have often been constrained by lack of funding for education, advocacy for legislation change, and infrastructure. Are you encouraged by the establishment of mechanisms such as the UN’s Road Safety Trust Fund?

I’d be honest, I don’t think the funding is the main concern. I would say it is rather a lack of political will. Of course, funding mechanisms such as the FAI and Bloomberg Philanthropies have been instrumental in funding important changes in countries and communities. These include advocating for new laws at national level or updating infrastructure where it is needed to a local level. So, yes, it is my hope that the UN’s Road Safety Trust Fund will help contribute in a tangible way to these types of activities.

One of the key numbers people tend to forget is the road safety deaths in developing countries. WHO, 50 million people are injured each year on the world’s roads. Can you speak to the health burden of these figures on economics and healthcare services?

Road traffic deaths and injuries can cost a nation as much as three per cent of GDP. That’s an enormous burden for national economies. When I visit hospitals in Africa and Asia, it’s apparent that a lot of resources are dedicated to the care and treatment of road traffic crash victims, who are often young. Some of these people affect live with a permanent disability and require long-term rehabilitation. In settings where people do not have access to universal health coverage, a person disabled in a road traffic crash can lose his or her entire family into poverty. Of course, this is in addition to the physical pain and suffering experienced from the injury, as well as the long-term economic and social losses when people are unable to work or contribute to the family or community needs. That’s why prevention of these injuries and deaths is so important. It’s even worse a waste to use scarce health resources on an issue that is largely preventable.

Earlier this year we celebrated the fifth edition of the UN’s Road Safety Week. WHO is a supporter of this effort. What effect do you believe this kind of activity can have at a local level in improving road behaviour?

I believe WHO is proud to lead such high profile road safety events as Road Safety Week, which is celebrated worldwide. It’s an opportunity to highlight the importance of road safety high on the political agenda, which is of course right where it belongs.

A parallel health issue associated with increased motorisation is worsening air quality. Are you encouraged by efforts to tackle this in developed nations through emission zones, restrictions on diesel-fuelled vehicles and the promotion of electric vehicles, or is more drastic action required?

There is definitely a link between road safety and air quality. When roads are made safe for all users, all people actually walk and cycle more. That not only reduces air pollution but also allows people to reap the health benefits of increased physical activity, reducing diseases such as cancer, diabetes and heart disease.

In the developing world, outdoor or pollution causes a 4.5 million premature deaths every year and around 9% per cent of these are in low- and middle-income countries. Of course, the sources of air pollution are many, including industrial emissions, coal-fired power plants and the burning of waste, but cars and other forms of road transport play their part too.

I am encouraged by many examples of cities and countries around the world introducing transport policies to reduce air pollution. For example, encouraging a shift away from diesel vehicles to low-emissions vehicles and fuels, and in particular to electric cars.

Last year you spoke about the relevance of the UN Sustainable Development Goals and in particular the importance of the third goal, Good Health and Well Being For All, in achieving all of the other goals. Can you elaborate on why this is so and is there a possible road map to bring about universal health coverage?

At least half of the world’s population still do not have full coverage of essential health services. This is unacceptable. Individuals should receive the health services they need without suffering financial hardship. People need to be protected from the consequences of paying for health services out of their own pockets, and thereby being pulled into poverty. Achieving universal health coverage is one of the targets of the Sustainable Development Goals set by the United Nations. Countries that progress towards universal health coverage will make progress towards achieving all of the other health-related targets, and towards the other goals.

Good health allows children to learn and adults to work, helps people escape from poverty and provides the basis for long-term economic development. Universal health coverage is firmly based on the WHO Constitution, which declares health a fundamental human right and commits to ensuring the highest attainable level of health for all. WHO is supporting countries to develop their health systems to move towards and sustain universal health coverage.

An extension of road safety is air pollution. Dr Adhanom Ghebreyesus is pleased that more cities are adopting transport policies to tackle this.

‘Political leaders should realise that road safety is good for development. They should learn from countries with good safety records’
The goal of safety

You're the latest ambassador to join the #3500LIVES campaign and your message of Watch Out For Kids was launched at this year's Italian Grand Prix. Why is this campaign important to you?

It's important to raise awareness about road safety, especially in the environment of motor sport but also in real life as well. As a Formula 1 fan, I follow all the races and sometimes it's easy to get carried away and feel like you can use a bit of speed too. But it's important to have all the elements for security around you. They have that in racing and we should be aware of that when we are on the road.

It's an impressive campaign and I'm really proud to join this group of superstars of sport and other areas. At the launch of my message in Monza, Nico Rosberg was there, which was wonderful, but it also involved stars such as Yohan Blake and celebrities from a wide variety of sports. To be able to bring all these legends together for such a great cause, it really gave great momentum to the quest for road safety and greater visibility. I'd do everything I can to help spread the message of security on the world's roads.

How did you come to be involved in the #3500LIVES campaign?

I met FIA President Jean Todt through a mutual friend and we spoke about how we could use our image to have an impact across the world, but more specifically in Africa, spreading good messages about safe road behaviour. I'm really happy to be part of it. These are the kind of messages about safe road behaviour. I'm really happy to be part of it. These are the kind of messages that not only impact on society, but more importantly they can help save lives.

Your message is focused on children. You have legions of young fans around the world. Was that also a key aspect of your involvement?

I have five kids so I know how important they are to me and I think it's the same for everyone in this world. It's about safety for everyone. A short while ago I lost a friend, a very good friend, a young guy who was just 33 years old. He was killed in a motorcycle accident on the road. He was not wearing a helmet and I think that could have saved him. It was heart breaking and I don't want to see that happen to anybody.

I've been working on this project for some months and that happened during the period we began on this campaign, so it was devastating. I can do anything else than think about him and what could have been done if he was wearing a helmet. That's why I'm here.

"I lost a good friend in a motorcycle accident during the period we began on this campaign. That's why I'm here" - Didier Drogba

The deployment of the new visual will be focused on Africa, where 44 per cent of all road traffic deaths on the continent involve cyclists and pedestrians. Your own foundation, the FIA Foundation and the Prudence Foundation will also contribute to spread the campaign's message for safer roads across the region.

How crucial is it to improve safety in Africa?

It's an impressive campaign and I'm really proud to join this group of superstars of sport and other areas. At the launch of my message in Monza, Nico Rosberg was there, which was wonderful, but it also involved stars such as Yohan Blake and celebrities from a wide variety of sports. To be able to bring all these legends together for such a great cause, it really gave great momentum to the quest for road safety and greater visibility. I'd do everything I can to help spread the message of security on the world's roads.

The FIA's #3500LIVES campaign is motivated to better in Africa. We must speak about all the other things we have to do for road safety, such as wearing helmets and using seat belts, but we also need to improve the infrastructure in Africa to give people safe roads to use. It's a big part of the solution.

After 20 years at the highest levels of football, you brought your playing career to a close last year. That's a hard thing for a professional sportsman to do. Do you miss playing?

I think I will miss the rest of my life, but it's the end of a cycle, as a player, and since last year I've embarked on a new life in which I'm meeting some very interesting people, such as Jean Todt, and I'm working on a few projects for the future, so I'm still busy.

You've spoken about your desire to play a role in the Ivorian Football Association (FIF) to develop football in your home country. Is that an ambition you still hold?

I used to speak with a lot of people to understand what the needs are. If I'm able to go for it, to have a little impact and make some improvement on what has been done recently, then why not? Let's see.

Finally, tell us a little bit about your passion for motor sport. Your first professional football contract was with Le Mans, wasn't it?

I was and I still have the taste of the care in my own after all these years. I lived in Le Mans for four years and it's a city of sport – football, basketball and of course motor racing with the Le Mans 24 Hours. It is a brave man there and I grew up with it, so it's a big thing.

Football legend Didier Drogba is the latest international star to lend his support to the FIA's #3500LIVES road safety campaign. The Ivorian striker talks to AUTO about launching his message of Watch Out For Kids at this year’s Italian Grand Prix, the importance of improving safety in Africa and how personal loss has reinforced his commitment to the cause...
The futuristic-looking McLaren Technology Centre was planned with environmental protection very much in mind.

Taken at face value, electric cars appear to be a silver bullet for all the environmental ills of the internal combustion engine. They produce zero exhaust emissions and don’t burn fossil fuels, after all. Unfortunately, EVs are far from immune from environmental and geopolitical issues. The most publicised relate to how much of the electricity consumed is generated by burning coal. Less well known is the pressure that EV batteries and electric motors increasingly place on precious metals and rare earth minerals.

So far, the relatively small percentage of pure battery electric vehicles (BEVs) and plug-in hybrid vehicles (PHEVs) sold globally has minimised these consequences, accounting for around four per cent of the global vehicle fleet. But technological improvements, falling prices and greater choice continue to make EVs and hybrids of all types more appealing to a broader customer base. Investment banking firm JP Morgan estimates BEVs and PHEVs will account for 12 per cent of the global mix by 2025, or 33 per cent with full- and mild-hybrids factored.

What’s more, tightening emissions regulations and government mandates will likely see cars with only an internal combustion engine account for just four per cent of the market by 2030, says JP Morgan, a figure which may well be conservative. Inevitably, then, the rapidly-increasing market share of electrified vehicles over the coming decade will place more pressure on these resources.

Thankfully, car manufacturers are already responding to the new-found challenges with inventive solutions and strategies, even if significant hurdles remain.

Key challenges centre around the batteries and electric motors used in electrified vehicles.
Most hybrid and electric cars now use lithium-ion batteries to store energy, which contain two critical materials: lithium and cobalt. Lithium is a light, low-density transition metal and demand for it has soared not only because of batteries in electric cars, but also in laptops and smartphones too. The soft silver-white reactive alkali element is typically found in compound form with other minerals in igneous rock or oceans and salt lakes, and most commonly sourced from hard-rock mines in Australia, or from salt flats or briny lakes within the South American Lithium Triangle of Argentina, Bolivia and Chile. Mining leaves an obvious environmental footprint, but neither is extraction from salt flats entirely without impact. The process is highly water intensive (water is pumped into the ground to bring mineral-rich brine to the surface) and can lead to toxic leaks.

With demand for lithium predicted to increase by five times today (to an estimated 3.5 million metric tonnes by 2025), the pressure on extracting lithium will only increase. “We would basically need to absorb the entire world’s lithium production,” says Tesla boss Elon Musk of the challenge of ramping up production from 2020’s 260,000 tons to a target of half a million annually.

Lithium is a relatively abundant element, however, which could be generated primarily from seawater or brine with a far lower environmental impact. The problems surrounding its supply and extraction are not to be underestimated, but do appear relatively surmountable.

COBALT CONUNDRUM Cobalt used in lithium-ion batteries is a more politically charged commodity and has been dubbed the blood diamond of batteries. Like lithium, cobalt is found in the Earth’s crust in chemically combined form, but it is also a by-product of copper and nickel production. It is used in batteries to maintain the structural integrity of negative cathodes and prevent overheating. A typical electric car battery uses 6-kg of cobalt and its price has risen from around £13,000 per tonne in 2015 to approximately £42,000 today.

Most critically, 60 per cent of cobalt is currently sourced from the Democratic Republic of Congo, leaving car makers both ethically and economically exposed to the politically unstable country for this essential battery ingredient. Not only is the mining itself damaging to the environment - both in its acid-stripping of the landscape and the toxic waste and harmful particles it produces - but the mining practices themselves are often unethical, including child labour in some artisanal mines where cobalt is a hand-mined. Indeed, some 20 per cent of the cobalt sourced from the DRC is hand-mined. Given the complexity of modern supply chains, it can be difficult to precisely account for every step of production.

In response, car makers including Volvo, Daimler and BMW have joined the Electric Vehicle-Cobalt Initiative to minimise the companies’ exposure to these risks. BMW has also defined pricing structures and supply contracts for the next 15 years in an effort to guarantee stability. “We have secured access to cobalt beyond 2030 to 2035 with mining companies and we have price-corridors already,” explains BMW boss Klaus Fröhlich. “So we have clear access to that raw material – nobody in the car industry has that. And because we are sustainable, we have defined with the mining company how to produce the mining cobalt, both ecologically and also looking at working conditions for people.”

Along with regulating the supply of cobalt, car makers are attempting to reduce its use. Toyota has reduced the 20 per cent of its mining, and manganese once contained in its battery cathodes to 10 per cent each over recent years, while increasing nickel content to 80 per cent. Elon Musk has claimed battery for the Tesla Model 3 uses less than three per cent cobalt (thanks to a mix of nickel and aluminum) and that Tesla’s next-generation battery will eliminate the substance altogether. Eliminating cobalt entirely is no easy task, however. It reduces the life of the battery cell, meaning a car maker is more likely to need to replace it under the lengthy battery warranties that have helped build consumer confidence in electric vehicles. The likelihood of the battery combusting also increases.

Solid-state lithium cells represent a viable alternative to the Renault-Nissan-Mitsubishi Alliance has invested in toxic materials. The specialist in solid-state lithium-ion batteries has pioneered a solid plastic electrolyte to replace the unstable liquid electrolyte and requires little or no cobalt to be used. However, BMW’s Fridrich expects conventional lithium-ion batteries to dominate for some time to come. “In my honest opinion we will not see solid-state batteries (in mass production) before 2030,” he says. Perhaps we will see some pilot projects by 2025, but then they will have lower performance and higher cost,” he says. As such, cobalt locks look to be a crucial component of electric vehicles in the near medium term. New sources of the mineral that are yet to be tapped in Latvia, Alaska and Australia soon after 2020 will help ease the dependence on supplies from the Congo.

A further area of concern in the production of electric vehicles relates to the rare earths used in their electric motors. Rare earths are a group of 17 minerals (plus the related scandium and yttrium) and per cent of electric vehicles use raw earth-based magnets. Typically, 30 per cent of elements used in magnets at the heart of high output electric motors are neodymium, terbium and dysprosium. Their role is to maintain the motors’ magnetic properties even at high operating temperatures.

Despite their name, rare earths are not particularly scarce. However, mining them can be environmentally hazardous, as proven when regulators found the open-pit Montana Pine mine in California had contaminated nearby desert with radioactive wastewater. It stopped processing material in 2002, before reopening in 2017. Nonetheless, today China accounts for over 80 per cent of the global supply of rare earths. Even new earths mined outside China are not transported to China for processing.

It means that along with the environmental concerns surrounding the extraction of rare earths, car makers are also disproportionately exposed to trade wars and sanctions. BMW is again attempting to shield the company from such exposure, and at this year’s Frankfurt motor show chairman Oliver Zipse stated that no new earth minerals would be used in the fifth-generation of its iDrive system and that the manufacturer would purchase cobalt only from mines in Australia and Moncoco. “Electric vehicles can only make a real contribution to climate protection when the entire value chain is sustainable,” he explained. “Today, meanwhile, has developed new magnets with significantly reduced neodymium content for its electric motors, spumed into action not only by environmental and geopolitical concerns, but also because it predicts demand for rare earth elements will (at least) supply by 2025.

The Japanese maker’s new-generation magnets entirely eliminate terbium and dysprosium and significantly reduce neodymium content. This has been achieved by substituting the less expensive and more abundant lanthanum and cerium, and by reducing neodymium by making each grain a tenth smaller compared with previous magnets while increasing the gap between each grain by a factor of ten. The result is claimed to actually exceed the magnetic performance of previous designs. It’s a promising innovation that can help overcome some of the biggest challenges surrounding the production of electric vehicles; as, even issues regarding the extraction of raw materials are likely to remain entirely given the inevitable exponential increase in EVs over the coming decades. BMW is planning to eliminate raw elements from the fifth generation of its iDrive system used in cars such as the iNEXT.

Electric vehicles can only make a real contribution to climate protection when the entire value chain is sustainable

BMW boss Klaus Fröhlich expects conventional lithium-ion batteries to dominate for some time to come. “In my honest opinion we will not see solid-state batteries (in mass production) before 2030,” he says. Perhaps we will see some pilot projects by 2025, but then they will have lower performance and higher cost,” he says. As such, cobalt locks look to be a crucial component of electric vehicles in the near

Theerman makes choice: ‘Green’ Zipse, has put medium-term. New sources of the mineral that are yet to be tapped in Latvia, Alaska and Australia soon after 2020 will help ease the dependence on supplies from the Congo. A further area of concern in the production of electric vehicles relates to the rare earths used in their electric motors. Rare earths are a group of 17 minerals (plus the related scandium and yttrium) and per cent of electric vehicles use raw earth-based magnets. Typically, 30 per cent of elements used in magnets at the heart of high output electric motors are neodymium, terbium and dysprosium. Their role is to maintain the motors’ magnetic properties even at high operating temperatures. Despite their name, rare earths are not particularly scarce. However, mining them can be environmentally hazardous, as proven when regulators found the open-pit Montana Pine mine in California had contaminated nearby desert with radioactive wastewater. It stopped processing material in 2002, before reopening in 2017. Nonetheless, today China accounts for over 80 per cent of the global supply of rare earths. Even new earths mined outside China are not transported to China for processing. It means that along with the environmental concerns surrounding the extraction of rare earths, car makers are also disproportionately exposed to trade wars and sanctions. BMW is again attempting to shield the company from such exposure, and at this year’s Frankfurt motor show chairman Oliver Zipse stated that no new earth minerals would be used in the fifth-generation of its iDrive system and that the manufacturer would purchase cobalt only from mines in Australia and Moncoco. “Electric vehicles can only make a real contribution to climate protection when the entire value chain is sustainable,” he explained. “Today, meanwhile, has developed new magnets with significantly reduced neodymium content for its electric motors, spumed into action not only by environmental and geopolitical concerns, but also because it predicts demand for rare earth elements will (at least) supply by 2025. The Japanese maker’s new-generation magnets entirely eliminate terbium and dysprosium and significantly reduce neodymium content. This has been achieved by substituting the less expensive and more abundant lanthanum and cerium, and by reducing neodymium by making each grain a tenth smaller compared with previous magnets while increasing the gap between each grain by a factor of ten. The result is claimed to actually exceed the magnetic performance of previous designs. It’s a promising innovation that can help overcome some of the biggest challenges surrounding the production of electric vehicles; as, even issues regarding the extraction of raw materials are likely to remain entirely given the inevitable exponential increase in EVs over the coming decades. BMW is planning to eliminate raw elements from the fifth generation of its iDrive system used in cars such as the iNEXT. BMW boss Klaus Fröhlich expects conventional lithium-ion batteries to dominate for some time to come. “In my honest opinion we will not see solid-state batteries (in mass production) before 2030,” he says. Perhaps we will see some pilot projects by 2025, but then they will have lower performance and higher cost,” he says. As such, cobalt locks look to be a crucial component of electric vehicles in the near
Amend. The project uses funding through the Safer Roads to Schools – Too Young to Die project and automobile clubs. Impact, led by local stakeholders such as NGOs and government agencies, as their peers anywhere else in the world. The FIA Foundation, to enable grassroots FIA members to address road safety challenges and support the United Nations Decade of Action on the global and regional levels. The programme has, so far, supported over 350 road safety initiatives in more than 95 countries. Every child’s right to safety and education is crucial to engineering improvements, high-quality road safety education and practical learning for pupil and teachers would add value and impact to the project. It is the latest in a series of linked projects in the country to address safety around schools, seeking to support localised infrastructure improvements as a means to encourage long-term, sustainable investment in national road safety. The project uses the Star Rating for Schools (SRS) methodology, a joint initiative between Amend and ARB to assess the level of safety around schools and help identify where safe road infrastructure is required. In Botswana, immediate goal of protecting pupils on their journeys to school, the Too Young to Die project has an important role to shift perceptions about road safety, and demonstrate the public and economic benefits to encourage long-term sustainable investment in safety by the government of Botswana.

The project was launched with the support of decision-makers and legislators at every level, from the local, such as the Village Development Community and neighbourhood schools, to the regional Gaborone City Council, right up to the Government’s Department of Road Transport Safety and traffic police. "Every single child should have a safe journey to school. This club-led investment is the continuation of similar infrastructure projects by Amend in the country. In June, the First Lady of Botswana, Neo Moakgathwe, joined Child Health Initiative Global Ambassador Zoleka Mandela and the FIA Foundation at Diphetogo Primary School in Gaborone to launch new infrastructure designed to prevent road traffic injuries and fatalities around the school. Speaking at the time, she gave her support to the initiative and the wider need to invest in safe road infrastructure, shaping children’s fundamental right to safety education. "I think of my own daughter and going to school is the most important journey of her life," she said. "And for far too many, this journey is costing them their lives. We must not accept speeds of over 30 km/h near our schools. Over this speed their lives are at risk. It should be a given that our children are protected." FIA Foundation Deputy Director Ace Silverman, who also spoke at the launch, added: "Our partners here in Botswana are implementing the solutions that we know are proven to save lives and combat road traffic injury. What’s needed is a political commitment and financing to bring these solutions to scale. ‘Every single child should have a safe journey to school. No young person should be denied their future by the scourge of road traffic injury’

"No young person should be denied their future by the scourge of road traffic injury"
Mika Häkkinen channelled a near-death crash at the 1995 Australian Grand Prix into an all-or-nothing quest for Formula 1 world championship glory. All that stood in his way was a rival reckoned to be one of the greatest of all time. The flying Finn reveals how he beat Michael Schumacher and wrote his own legend...
In his first head-to-head laps against new team-mate David Coulthard, Mika was floored, setting the tone for a season which the qualifying tally would end up as in favours.

Any doubts colleagues had held about Hakkinen’s ability to recover from a near-death experience were swiftly banished, while Mika himself—still yet to win a grand prix despite his emerging super status—saw his renewed purpose through adversity.

The stage was set for a few fleeting seasons also respect for each other’s abilities.

McLaren,出院 from the last that followed the Suzuka Point-Blank days, now up against a Scuderia finally being rendered into a hungry, orderly, consistent-winning machine under the leadership of Jean Todt. The scales of performance were finally joined between those two racing battalions. Mika-McLaren-Mercedes was a ragged collection, but so, too, was a Schumacher-driven Ferrari created by a crack engineering team that boasted Ross Brawn, Rory Byrne and Gilles Simon.

A sense of what lay ahead in the final race of 1997, at Jerez, in Spain, where Hakkinen finally took his first win, in a monkey-off his and McLaren’s backs that had been changing around for the four winless years since he joined, from Leclerc.

“To see the celebration of the team after all those years of hard work, I could understand that they had a weight lifted from their shoulders,” he recalls. “It felt good for my soul—now I’m a winner in Formula 1—but that’s not the time to uncork the champagne bottle just yet. I had my next mission: to win the world championship.”

So I pushed the emotions away.”

He continued to keep them in check as he made a silver wave through the 1998 season, at the helm of the superb MP4-13 masterminded by Adrian Newey to net that year’s introduce a “narrow track” technical regulations. Channeling a worked-out mantra of “maximum attack” Hakkinen steered to eight wins from 16 races, but now had his moment to breathe as Schumacher and Ferrari took the drivers’ title in a lacerated Suzuka showdown.

“If you didn’t have so many bad days.

I knew every time I came to a grand prix The Michael ‘would be ready to attack. And he didn’t have so many bad days. A tough, tough competitor”
“When I was racing,” Mika says, “often I wasn’t confident enough with my English to really express what I wanted to say. And sometimes I thought ‘Oh my God, I don’t want to start explaining about why we are not winning’. Now, later on in my life, I feel very differently. I see that people are really interested and I can say what I want to say. And that motivates me to talk about the past – especially if we talk about winning!”

Naturally talk then turns to Mika’s most famous win of all – one that, in the eyes of some observers, produced what might just have been the single most fabulous moment of F1’s history – Spa 2000.

At that Belgian venue of legends, the two greatest drivers of their era – competitive intensity matched only by respect for each other’s abilities – conjured a flash of grand prix magic that seared itself into the sport’s soul.

Lap 40 and Häkkinen is closing on Schumacher for the lead. The championship context: Häkkinen, 64 points; Schumacher, 62. Each is chasing a rare prize. For Mika the prospect of a championship hat-trick; for Michael, the first Ferrari drivers’ title since Jody Scheckter’s in 1979. Both are double world champions at the peak of their powers. Pole-sitter Mika has half-spun on lap 13, but senses there’s an opportunity to close down, then pass Schumacher, six seconds up the road.

“When an amazing race that was,” says Häkkinen, cracking into his famous lop-sided grin. “I’ll never forget it. Conditions were very difficult – dry, wet, changing – but we got the set-up right and it was great. The moment when I tried to overtake him before the end of the race (lap 40) he was really blocking me very heavily.”

‘BIG BALLS’ MOMENT

The cars touched at nearly 200mph – Schumacher’s right-rear kissing Häkkinen’s left front-wing endplate (McLaren displayed the tyre-scuffed body part in a trophy cabinet thereafter).

“And I was shocked because it was not 80km/h. It was like 300 easily and at those type of speeds if you lose control it’s guaranteed you will hurt yourself and seriously.”

Thoughts of self-preservation were not at the forefront of Häkkinen’s mind, however, because what followed a lap later required what he describes as “big balls.”

“The moment, of course, was the pass at Les Combes into T3, after Eddie Irvine had closed the gap. Conditions were horrendous. The moment, of course, was the pass at Aïello. I was shocked because it was not 80km/h. It was like 300 easily and at those type of speeds if you lose control it’s guaranteed you will hurt yourself and seriously.”

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The moment, of course, was the pass at Aïello. I was shocked because it was not 80km/h. It was like 300 easily and at those type of speeds if you lose control it’s guaranteed you will hurt yourself and seriously.”

“Big balls are an important part of your performance when it comes to sport,” Häkkinen says, “but it has to be something that you can control to be able to make good decisions. And I was able to turn that moment on the previous lap to my advantage. And of course it gave me more courage to be able to say ‘OK, you want to play the game? Let’s play the game’.”
“Eau Rouge corner at that time was in sixth gear in qualifying but in a race configuration it was not flat because the tyres were a bit worn and the suspension was already tired. But in that moment I said to myself when I was chasing him: ‘OK, I’m going to have to do it flat, otherwise I’m never going to have enough speed to be able to overtake him’ and went flat. And when I was going through Eau Rouge – I will never forget this – I couldn’t believe what a stress the whole machine was going through. I thought it was going to explode. I was holding the steering as hard as I could and keeping the correct line, because if I lost the line I would have blown off, I think into the centre of Spa! So I managed to get it right and as soon as I was on the straight following Michael I thought ‘That’s a. Now I’m going to go for it’, and at the same time I could see Zonta and I thought ‘OK, now I have a plan B’. But when I actually did overtaking I was very worried because the inside line was wet but the racing line was dry and that was the line where The Michael was and I thought if he’s going to push now, there’s no way I can brake as late as he can. I was hoping that he would be so surprised that he was going to brake early and he was going to give up. And he did. It gave me not an unspeakable feeling. It was the peak of one of Formula 1’s most enduring rivalries, but for Häkkinen, the Spa victory would mark his high watermark in grand prix racing. Schumacher went on to win the next four races and closed out the season in resounding style.

‘When I was going through Eau Rouge I couldn’t believe what a stress the whole machine was going through. I thought it was going to explode’

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‘And he was right, you know,” says Mika with emphatic zeal, “because really you can only lose. Formula 1 has given me so much and when I go to the F1 paddock now, I don’t think so much about the 2000 season. I walk in there and say ‘thank you Formula 1’. What I experienced was unbelievable.”

A rare display of emotion from Häkkinen followed his retirement at the Italian GP. Below: Putting Schumacher in his place at Spa in 2000.
Engineer, industrialist, autocrat and auteur, the late Ferdinand Piëch, who died earlier this year at the age of 82, was one of the last great leviathans of the automotive world.

In an age when motor manufacture is conducted by vast conglomerates scattered across the globe and brand decisions are made by cohorts of management graduates, Ferdinand Piëch, who died in August at the age of 82, was perhaps the last of a breed of single-minded visionaries who controlled every aspect of a brand’s ethos, from drawing board to showroom and from race track to road.

Piëch spent his life in the motor industry, in various roles and in several different sectors from motor sport to finance. On top of that, it was down to him that some brands, Audi for example, went through a complete transformation and became the benchmark for excellence in this area. In 1999, he was nominated as Car Executive of the Century and was inducted into the Automotive Hall of Fame in 2014.

Born in Austria in 1937 as the grandson of Ferdinand Porsche, Piëch was immersed in the business from his earliest years. He graduated in mechanical engineering at the University of Zurich in 1959, writing a thesis on the development of a Formula 1 engine. In fact, an eight-cylinder engine similar to the one he wrote about was making its debut in the Porsche 908 at around the same time. After graduating, Pich worked for the family firm, Porsche. From 1963 to 1973 he had various roles and worked on several projects.

He set up and led a specialist team that produced legendary cars like the Porsche 904 and 917. The 917 would play a key role in Porsche’s history. In 1967, the FIA, then the independent sporting body of the FIA, wanted to increase the number of competitors taking part in races while making motor sport safer. It created a new international championship open to cars of which a minimum of 25 had to be produced. Piëch dreamed of winning Le Mans and began working night and day on the 917 project. In the first part of 1969, the FIA inspected cars in the factory and homologation was denied as only three were complete, with the remaining cars either on the production line or in parts.
‘From the moment he joined, Piëch set about transforming Audi into one of the benchmark brands in the premium car category’

Work on the idea started in 1977, when Piëch began elaborating on this technology alongside engineer Jörg Beneke. His right-hand man at Audi, Prototype testing on the slippery roads of Finland proved that a four-wheel drive system produced a clear improvement in terms of safety and ease of driving. Then, just as had happened with the Porsche 911, synchronicity played its part. In 1978, the FIA decided that four-wheel drive cars would be eligible to compete in the World Rally Championships.

Piëch, now head of technical development at Audi, decided that rather than implement a four-wheel drive system on an existing model, a clean-sheet design was required. And so the Quattro, the first mass-produced all-wheel-drive car, was born. It was a prime example of Piëch’s belief that motor sport provided the perfect rapid prototyping playground. Enlisting rally star Hannu Mikkola to help with the project, Piëch told the future champion: “I can get an answer from you in three months. If I put it in development, it takes a year.”

Designed by Giorgetto Giugiaro, the Quattro was launched at the 1980 Geneva Motor Show and made its debut on the world rally stage that same year. Within two years the car was sweeping all before it. Following the introduction of new Group B rules the Quattro, like the Porsche 911, became a dominant force, taking the Constructors’ WRC crown in 1981 and ’82. Mikkola took the 1981 Drivers’ title, while Stig Blomqvist triumphed in ’84.

Success at Audi led to Piëch being called up to revitalise Volkswagen, joining as Managing Director in 1993. The Austrian took on the task when the Wolfsburg company was on the verge of bankruptcy, shackled with financial problems and losing billions each year.

Piëch got rid of almost the entire board and the board was able to share up to 50 per cent of profits and thus make huge savings.

Then on April 20th, thanks to Piëch’s tenacity, the 25-completed car were wheeled out into the factory courtyard. The 917 was developed in just 12 months as the first 10-cylinder car from the German constructor and featured hi-tech materials such as magnesium, titanium and exotic alloys as a result of the company’s materials such as magnesium, titanium and exotic alloys as a result of the company’s

LANDMARK SUCCESSES
Despite teething troubles in its early racing days, the Porsche 917 eventually metamorphosed into a dominant force in sports car racing. In 1970, in the hands of Germany’s Hans Herrmann and Englishman Richard Attwood, it won the Le Mans in the hands of Germany’s Hans Hermann and a dominant force in sports car racing. In 1979, the Porsche 917/20 was the flag bearer in the World Sportscar Championship, scoring a clean sweep of the season’s titles in 1971 and ’72.

In 1980, the Porsche 911/930 Turbo became the most popular sports car in the world, selling over 200,000 units. The 911 earned its place in automotive history as one of the greatest sports cars ever produced.

The Audi Quattro (left) was launched at the 1980 Geneva Motor Show and made its debut on the world rally stage that same year. Within two years the car was sweeping all before it. Following the introduction of new Group B rules the Quattro, like the Porsche 911, became a dominant force, taking the Constructors’ WRC crown in 1981 and ’82. Mikkola took the 1981 Drivers’ title, while Stig Blomqvist triumphed in ’84. Success at Audi led to Piëch being called up to revitalise Volkswagen, joining as Managing Director in 1993. The Austrian took on the task when the Wolfsburg company was on the verge of bankruptcy, shackled with financial problems and losing billions each year. Piëch got rid of almost the entire board and the board was able to share up to 50 per cent of profits and thus make huge savings.

As Audi’s head of technical development, Piëch (below left) was tasked with iconic cars such as the 918.

From the moment he joined, Piëch set about transforming Audi into one of the benchmark brands in the premium car category.
LIFELONG PASSION

In the mid-2000s Piech embarked on perhaps his most ambitious plan yet – a buyout of Volkswagen. The result was years of commercial and legal wrangling, but in 2009 Porsche SE, a family holding company, became the controlling owner of VW, although in the end it is VW that owns the Porsche brand.

‘His life was always filled with passion for automobiles and for those who built them,’ said his wife Ursula Piech at the time of his death. The engineer’s drive certainly worked and he succeeded in turning the loss-making company into one that posted profits of over £26 billion. On top of that, the Volkswagen group grew substantially through a series of acquisitions, launching the new Beetle in 1998, the brand’s most iconic model. The sales campaign was an outstanding success.

Despite the onerous responsibility of managing this vast industrial conglomerate, Piech never lost his love of racing and was a familiar figure at many events where his group was the focal point of our mission: to develop and produce intelligent and attractive cars.”

He also focused on his relationship with the workforce and in the toughest times of this restructuring process persuaded the unions to accept what became known as the ‘Volkswagen week’; saving 30,000 jobs by implementing a flexible four-day week and significantly reducing the wage bill.

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The dawn of the automobile age coincided with seismic changes in Italy’s development, and for more than a century the car has helped drive economic growth, industrial development, societal change and sporting prowess in the country. And throughout, the Automobile Club d’Italia has been inextricably linked with the process.
With the exception perhaps of the United States, there are few countries whose course has been so profoundly influenced by the rise of the automobile as Italy. The dawn of the car took place in the immediate aftermath of the country’s unification, and the transformation of what until the second half of the 19th century had been a relatively agrarian and underdeveloped corner of Europe into an industrial powerhouse (specifically in the north of Italy) was in large part inspired by Italian passion for this new form of transport.

From the initial explosion of early independent manufacturers such as Acura (Iliac), Fratelli Ceirano and Doppia, to the formation of future giants in 1890 and the launch of several other clubs such as the Union (formed in the early 1900s as Società Anonima Balena Damiani) and Lancia, the motor industry totally altered the economic landscape of the cities of Milan and Turin. A new engine for the growth of young nation was created.

Unione Automobilisti Italiani (Unione Italiana Motori Associati) followed in February 1902 and finally the organization known as the Automobile Club of Italy was established on 23rd January, 1903.

In the 1920s, the ACI’s growth and success has notably tracked the exponential growth of motorisation in Italy, expanding to meet economic, social and cultural shifts. Along the way the ACI has always significantly contributed to developing mobility, increasing road safety, fostering tourism, motoring sport and all those services needed by people who travel for work, leisure or holiday.

Along with 1.4 million members, the ACI is the largest association in Italy and continues to play an active role in the history and future of motor sport and mobility, thanks to its culture, experience, professionalism and technology,” says ACI President Angelo Sticchi Damiani.

The ACI’s growth and success were a consequence of the past and of one of the richest motori heritages, President Sticchi Damiani is particularly proud to have created ACI Storico, “a club within the club” devoted to preserving the cultural and historical value of cars. “The culture and history of the car is part of our DNA, and ACI Storico was founded to guarantee to all enthusiasts a partner with no economic interest and one that is able to enhance and protect the passion for real vintage cars,” he said.

“We want to prevent the great risk of seeing historical and highly polluting cars from travelling every day and try to get owners to obtain a classic car certification to pay less taxes and benefit from reduced insurance costs.”

In September, the ACI marked the 79th edition of the Italian GP with a gathering of drivers andseven-year-old car in Milan.

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To be achieved by means of incentives to purchase new cars and scrapping the older, more polluting older ones.

But renewing the car fleet is just one factor in achieving safe, environmentally-friendly and affordable mobility – of this the President is certain.

If the definition of sustainability needs to include safety, an action plan on this aspect must go hand in hand with a focus on vehicle safety (particularly given the adoption of new technologies), driver behaviour and mobility planning.

GUIDING LIGHT

With regards to mobility planning, for example, the ACI President is in no doubt that a more efficient reorganisation of the road would improve safety and living conditions in cities.

“Four cars out of ten travelling on our roads are pre-Euro 6 vehicles and that has a significant impact on road safety and the environment,” says Sticchi Damiani. “A simple Euro 6 motor vehicle pollutes as much as all Euro 5 and is in case of an accident the risk of death is four times higher. The ACI strongly advocates for vehicle fleet renewal.

“In order to guarantee good life conditions in urban areas, we believe it is essential to rethink urban transport in two tracks: a road network for motor vehicles and a separate network for vulnerable users, allowing at the same time appropriate and protected spaces for such new transport tools as scooters and e-bikes.”

A significant mobility opportunities for all – and within the context of the current transport debate – automobile clubs like the ACI have been playing an increasingly key role in influencing national policy and decision-making.

For more than 100 years, the ACI, together with ISIT (Italian Institute of Statistics), has published an annual report on road crash statistics, which represents a primary source of information for all national and local research.

“Road authorities and managers can look at the data to examine safety standards of the road infrastructure and find out more effectively critical spots that need intervention;” says Sticchi Damiani. “Local authorities can also use the report to better define their policies on the relevant road networks, while research institutes and universities can use the report for their research activities and often turn to us to get more in-depth data.”

In a country such as Italy where 50 per cent of all road accidents, road safety advocacy is a primary concern of paramount importance.

“The main cause of distraction lies in using cell phones to talk or read while driving,” says the club's
President. "According to ACI studies, this is a responsibility for three in every four accident-prone drivers. In order to tackle this emergency, in 2017 we launched a widespread awareness campaign, whose hashtag MuicanaArriva (look-out for the road and Mediaset telephone number) is simple and direct. Its success was enormous, exceeding all expectations, and in just one year we had 11 million contacts and six million viewers. But more importantly, we promoted a co-ordinated action at national and international level that reached its climax with the FIA Road Safety Campaigns," says Sticchi Damiani.

"It was a great moment for us as a sporting Federation. The organisation of a grand prix is a challenge, but I can hardly imagine a future without a Formula One Italian Grand Prix," says the ACI President.

FOCUS ON YOUTH

"I can hardly imagine a future without a Formula One Italian Grand Prix"
Automotive start-ups are among the most heavily-backed companies in the world with billions of dollars invested through individuals and other firms. But which ones are leading the way and where are they based? AUTO investigates...

**STARS OF THE START-UP WORLD**
Anthoine Hubert
1996-2019

Remembering the GP3 Series champion whose life was tragically cut short in a Formula 2 crash at Spa this summer

The world of motor sport was deeply shocked and saddened by the tragic loss of French rising star of racing Anthoine Hubert, following a crash during the FIA Formula 2 feature race at Spa-Francorchamps at the end of August. Born in Lyon on September 22, 1999, Anthoine developed a passion for motor sport early in life, encouraged by his amateur rally driving father François. Anthoine began karting at the age of 10 and was soon competing in the top levels of the category, often against rivals such as Max Verstappen, Pierre Gasly and Charles Leclerc. He made the move to single-seaters in 2011 and was an immediate success, taking a remarkable 9 wins from 8 races to claim that year’s French Formula 4 Championship title.

After two seasons in Formula Renault, Hubert took on the FIA European Formula 3 Championship, scoring a single win in a season dominated by Lance Stroll. Hubert then joined the Formula 1 feature race as part of the ART Grand Prix team for his maiden season in GP3. The young Frenchman put in an impressive showing, claiming four podium finishes and ending the season in fourth overall.

The performance brought him to the attention of F1 teams and in May of the following year – midway through what would be a title-winning second GP3 campaign that netted two wins, 10 podiums and points in all but four races – he was signed by the Renault Sport Academy.

For 2020, he moved to the FIA Formula 2 Championship, the final step on the FIA ladder towards the pinnacle of motor sport that is F1. Joining BR9 Arden he scored wins in Monaco and, emotionally, on home soil at the Paul Ricard circuit in the South of France.

Going into the weekend at Spa, the home of the season’s 10th round, Hubert lay eighth in the overall standings and following a tricky mid-season period was targeting a positive end to his first year in the category.

It wasn’t to be, however. On lap two of the feature race, Hubert was involved in a high-speed collision with Ecuadorian-American racer Juan Manuel Correa. Both drivers were seriously hurt in the incident but following transfer to the circuit’s medical centre, Anthoine succumbed to his injuries.

Paying tribute to the 23-year-old racer, FIA President Jean Todt said: “Heartbreaking sadness for the tragic passing of Anthoine Hubert during the FIA Formula 2 Championship race in Spa. From the FIA my deepest condolences to his family and the Arden team. All our thoughts for the best recovery are with Juan Manuel Correa.”

Hubert’s loss was deeply felt across a motor sport community all too aware of the inherent dangers still present in what has become a remarkably safer sport.

As well as tributes from fellow racers and friends from Formula 1 to former karting colleagues, Hubert was honoured with silent tributes ahead of a range of motor sport events around the world, from F1 to IndyCar. Eulogising the young racer, a Renault Academy statement described Hubert as a “true talent” whose “smile and sunny personality lit up our formidable group of young drivers.” The Frenchman was an inspiration to him to further light up the world of motor sport in years to come, but sadly his star shone all too briefly. He will be missed.
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