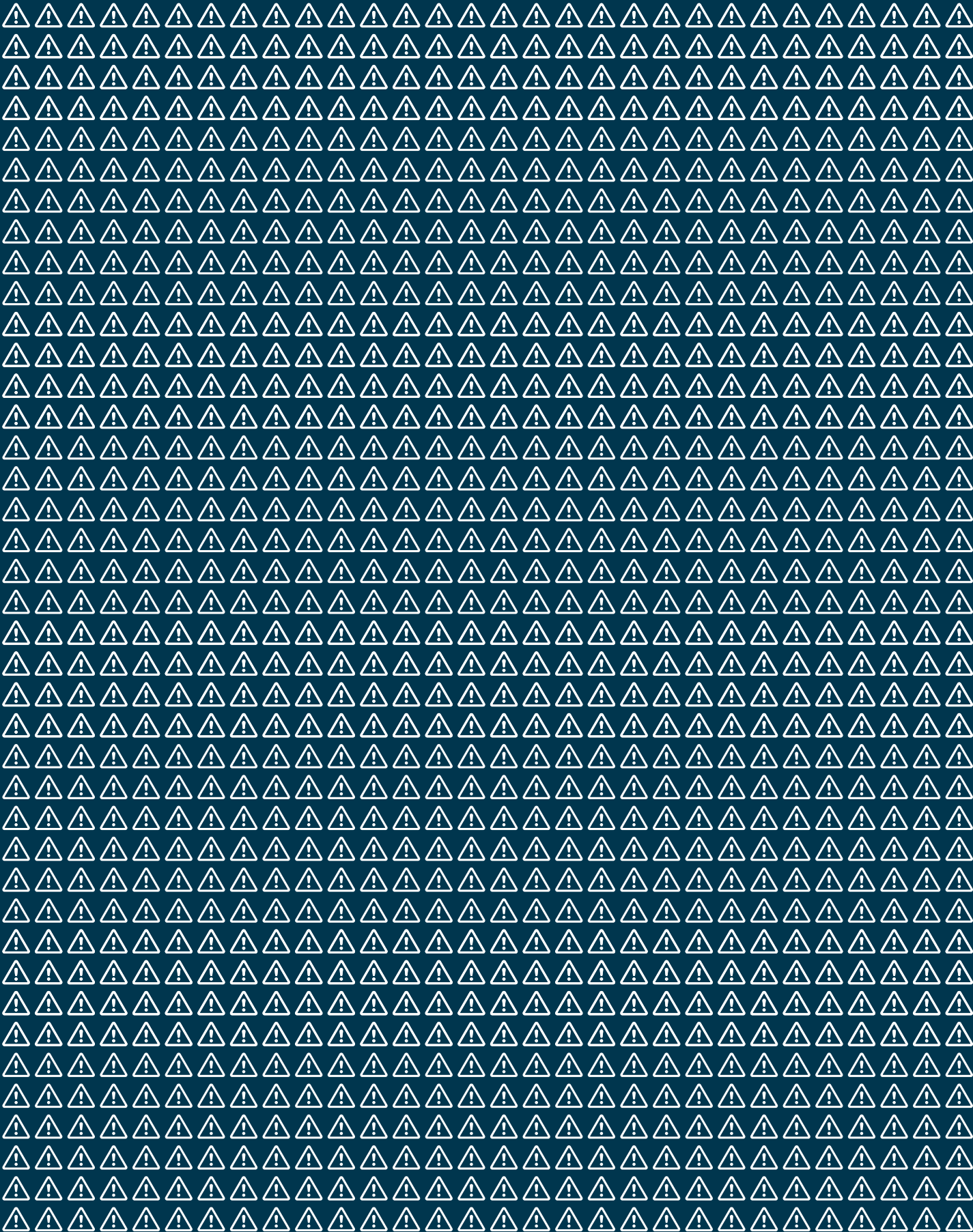
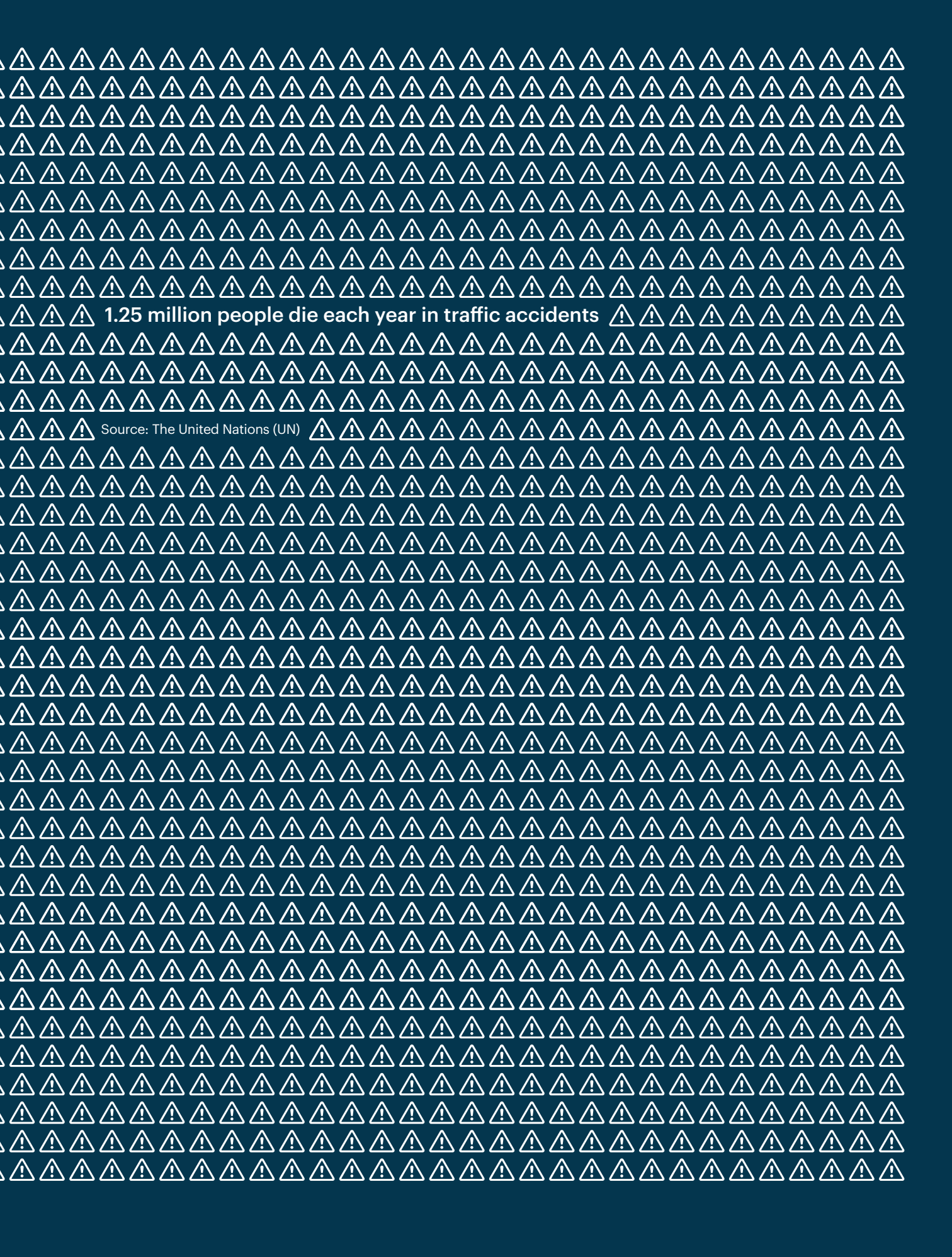

ON THE ROAD

Together we move the world | December 2018 | #2





1.25 million people die each year in traffic accidents

Source: The United Nations (UN)

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The exact time and place to happen to meet. There she was. Chance, luck, destiny? Does it matter? I always thought that it was my grandfather who planned it all.

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A movement begun 17 years ago by some young people in La Paz, the capital of Bolivia, directs traffic and promotes harmonious living together. Its success has spread to other cities in the country and it has been designated a Cultural Heritage of Humanity.

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THE DREAM OF MICHAEL KNIGHT

What would have happened if KITT, the Knight Rider car, had been able to speak with the highway?

Text: Gemma Gazulla

The sensors on the A13 detect accidents, visibility, the location of toll booths and stretches of road that are under repairs.



KITT, that fantastic car in the mythic television series Knight Rider (1982-1986) used to talk to its owner, Michael Knight; to the cars of the bad guys; and even to its mechanic Bonnie. And just think what it could have done if it had been driving on an 'intelligent road.'

That fantasy is today a reality. The KITT of the 21st century is not a Pontiac Firebird, but the Symbioz Demo Car, a Renault prototype designed to test, carry out research and develop the technology of driverless vehicles. And the road it drives on is not in Los Angeles but in Normandy: the A13 motorway, managed by the French concessionaire Sanef, a French subsidiary of the Abertis Group.

The sensors on the A13 check the state of the asphalt, detect traffic anomalies and help manage them. It's a road that's connected to its surroundings, capable of speaking to the maintenance men and to the cars that use it. It's a fantastic road.

The Symbioz, for its part, brings together the latest advances in the motor industry. It is an electric car, connected, and with level 4 of autonomous driving: it can move by itself and the driver should intervene only if the system should require it or there is some kind of failure.

Its 36 sensors allow it to learn to drive in snow and through thick fog, and to react when presented with the unanticipated behaviour of other cars and to anticipate road work areas or to choose the best lane for approaching toll barriers.

The A13 knows how to communicate with the car. The 40 kilometres of the motorway (which are also a testing ground) are equipped with Wi-Fi G5 technology by means of four telecommunications posts that send information about the traffic, road works, accidents, weather and the location of the tollgates.

The Symbioz is no longer on the roads but, after seven months of testing in real



Twocom / Shutterstock.com



Characteristics of the Symbioz

- 100% electric.
- Autonomy level 4 on the motorway.
- Connected to the V2I infrastructure.
- Operated in real traffic conditions.
- Passes through the tollgate and work area autonomously.
- Activities for the driver during autonomous travel.
- Developed through 6 principal partners: Sanef, IAV, TomTom, LG, Devialet and Ubisoft.

Characteristics of the A13 and Sanef

- 40 kilometres in length.
- Uses the I2V protocol from the Scoop project: G5 Wi-Fi technology, long portability.
- Installation of 4 UBR (Unité de Bord de Route) antennas.
- Support from a patrol automobile to guarantee the safety of the rest of the drivers.
- Transmission to the vehicle of information about the state of the road, the location of the toll gates and their disposability in real time; and localisation of the works areas, free lanes and maximum speed over the whole stretch of highway, depending on the weather.





traffic, has made it possible to analyse what preparation should be made –by automotive, technological, robotics, entertainment and infrastructures companies– for the cars of a future that’s just around the corner.

Symbioz Demo Car: discovering tomorrow today

On the outside it looks like a new version of the mythic KITT: modern, with luminous colours (yellow stripes when it is operated manually and blue stripes when the autonomous driving mode is activated). It has no rear-view mirrors but, in their place, small cameras that project the surroundings onto interior screens.

The differences are evident inside. More screens than usual. A control panel and a multimedia console. An augmented reality windscreen that indicates the vehicle’s trajectory. Different lights, scents and sounds for automatic and manual driving. And a joystick in the co-pilot’s seat in case a supervisor should retake

control of the car in an emergency. Road safety is the priority.

The ride

The driver starts the journey in manual mode (the special permission for the tests is only valid on the motorway) and once he’s on the A13, tells the car to take over the reins.

It then changes the interior light, the scent and the surrounding sounds. Without any transition, the Symbioz joins the traffic. With total safety it passes and avoids and road works. From time to time passengers are surprised by the flashbulb of the camera of some amused tourist.

A few kilometres later there’s an especially complicated moment even for the advanced geolocation systems: passing through a tollbooth without stopping.

This car has different geolocation systems and uses high-definition cartography to choose the most precise positioning. The communications posts on the motorway are activated to show the Symbioz which is the best lane to use for passing

through the barrier. The car moves toward that point, knowing that it has a margin of error of just 20 centimetres.

The highway sensors and the vehicle pool their information to facilitate the operation. The car, which is equipped with an automatic pay device, passes the toll gate with no problems and continues its journey.

Meanwhile the non-driver –the passenger– can enjoy his freedom: to watch an action film or listen to music with the seat in a 150-degree reclining position or travel into the future thanks to virtual reality glasses which, according to the experts, are the best way to totally disconnect from the driving.

This device takes the passenger along a futuristic road of tunnels and bridges. Some lights pass beside him: the traces of the real vehicles driving along the A13 on this rainy day in June. Using the glasses, the world is increasingly futuristic and there comes a moment when the car seems to take off and blend into the air. The passenger finds himself suspended between virtual clouds, flying like a bird.

An experience that not even Michael Knight himself could imagine.

HAVING A DRIVING LICENSE IS NOT A RIGHT BUT A PRIVILEGE

An interview with Alberto Escobar, member of the World Council for Mobility and Public Policies

Text: Esteban Ordóñez

If there's anywhere we need more respect, it's on the highway. Pacts between citizens make it possible to build common spaces where, to provide harmony, no single will holds sway over any other. Such pacts are necessary in all aspects of life, but when it's a question of driving, they become a matter of life and death: speed, the great number of driving conditions, the differences in safety among cars, pedestrians, lorries and cyclists...

And yet this is one of the areas where

there is the least respect for the rules. They are not respected because many people do not accept them as a shared guarantee but rather as an imposition, an extravagance, a sample of the sanctimoniousness of institutions. When we're on the road it should be as part of a community, not to compete in a war of egos and speed.

Alberto Escobar, director of the Studies Unit of the Automobile Club of Chile, knows this well. "Neither driv-

Radar devices have the effect of changing the behaviour of offenders.





**In Chile,
60% of drivers
have a feeling
of stress.**



Electric vehicles are a competitive alternative for public and private transportation.



ers or motorcyclists or cyclists or pedestrians know how to harmoniously coexist in public spaces. It's the law of the jungle, a fight between David and Goliath," he says.

In 2013, the Federation Internationale de l'Automobile (FIA) named Escobar a member of the Consejo Mundial para la Movilidad y Políticas Públicas. He was the first Latin American to be a member of this organisation, and it gave him the chance to point out some of the peculiarities of driving on the continent. "We can see the great problems in urban mobility and accidents. We can discover, analyse and debate to see where the developed countries are moving, but channelling this information is a tremendous challenge for us."

The information that Escobar provides about Chile is discouraging: 93% of drivers have been involved in a violent altercation over the past three years; 60% drive with a feeling of stress; 51% have been in risky situations with cyclists, and 47% with motorcyclists.

This expert has come to speak of 'driver illiteracy': "Many Chileans behind the wheel don't have a culture of coexistence. They are arrogant or forget that pedestrians and other drivers exist. Independently of the vehicle they are driving, they feel it is a piece of armour they can use as an assault weapon."

Escobar isn't talking about carelessness but about active negligence: "They think they drive well and they show this off by driving too fast and taking risks. They continually break the rules. They are aggressive, uncaring and defiant." The reason? "A lack of education and little planning by the authorities to try and integrate everyone into the road system."

The most pressing problems are excess speed, distractions caused by the use of cell phones, and a failure to use safety seat belts and chairs for children. In addition, some 20% of drivers operate a motor vehicle while drunk. This Chilean points out that having a driving license "is not a right but a privilege."

Someone is conscious of all this when they assimilate and understand the considerable risk they face each time they

start up an engine. The driver educational campaigns by the authorities take on a special relevance. Even so, many drivers don't fully assume their responsibility at the wheel until they suffer the consequences of their bad behaviour. In other words, when it's too late.

Escobar supports installing radar devices as a prevention measure. "They have shown internationally that they're the most effective measure. It's the best system for reducing road accidents, especially the fatal ones. In addition, they have the effect of changing the behaviour of offenders who still have not realised the dangers of driving too fast."

He points to France and Spain, where the system "has made it possible to reduce the death toll from speeding by 50%," or nations like Sweden and Australia, where the figure is 60%.

Escobar thinks electric cars provide a chance to change the paradigm. "They don't emit contaminating gasses or cause noise, they're four times as efficient. They're a highly competitive alternative for public and private transportation."

They can also change attitudes: "They help change bad habits because they have limited autonomy and this requires more planning. They're driven in a more intelligent way, because the driver always has to know the distances between points."

It is their cost that is holding up greater use of these electric cars. But the problem will soon disappear: "Their price is going down significantly. In 10 years the difference in cost between the electric cars and conventional ones will be very small," he predicts.

Escobar's dream for the future is transportation that's "electric, autonomous, shared and connected." The big challenge in the large cities is to design efficient mobility. Escobar doesn't see the city as just a technical and ecological achievement: rather, it implies a commitment to decongesting the city and coordinating roads and safety. And he sums it up this way: "Road culture cannot be built from one day to another, but needs the efforts and commitment of all sectors of society."

ABERTIS STUDIES THE MAIN DRIVING INFRACTIONS

The 1st Abertis Observatory on road safety analyses the behaviour of 2 million vehicles in Spain, France, Argentina, Brazil, Chile and Puerto Rico

The report reflects the concern of Abertis for improving road safety education and reducing accidents. The results show that the Europeans speed too much, while the Latin Americans tend to forget to use safety belts. In addition, the Observatory points out negligence when it comes to maintaining a safe distance between vehicles, driving in the slower traffic lanes, and using turn signals and cell phones.

32%
of drivers exceed
the speed limit



26%
of drivers don't use
the right-hand lane



44% of drivers
don't use the indicator
to signal they are
changing lanes































21% of Spanish passengers
don't wear their safety belt
in the back seat



41% of light French
vehicles exceed the
maximum legal speed



72% of backseat passengers
in Puerto Rico don't wear the
safety belt

						
Spain	 38%  35%	15%	45%	 16%  7%	5%	Back seat: 21% Driver: 0,2%
France	 41%  15%	37%	38%	 25%  15%	4%	Back seat: 13% Driver: 1%
Argentina	 10%  44%	23%	49%	 69%  57%	13%	Back seat: 69% Driver: 21%
Chile	 53%  55%	54%	32%	75%	5%	Back seat: 28% Driver: 12%
Brazil	 30%  25%	26%	56%	 16%  14%	1%	Back seat: 48% Driver: 1%
Puerto Rico	 15%  28%	--	74%	 37%  2%	12%	Back seat: 72% Driver: 7%

25% of drivers don't respect the minimum safety distance between cars



5% of drivers use the cell phone while driving



36% of backseat passengers don't wear their safety belt



56% of Brazilian drivers don't use the indicator when overtaking another vehicle



69% of light vehicles in Argentina don't respect the safety distance



54% of vehicles in Chile don't use the right-hand lane of the highway

GLOBETROTTERS AT THE WHEEL

From European roads to mythic American highways: anything goes when living an adventure on wheels. The preferred routes of the inveterate traveller

Text: Alberto García

Venturing into a journey, going on the open road, is a human urge that fills novels and films. Not even the advent of low-cost air travel, or the ease of moving from one point on the globe to the other, have diminished that love of visiting remote monuments or landscapes. There are many lists of places one should visit before dying; of the best natural parks for getting lost in or the beaches for spending part or all of a summer. And there are spaces that never change. Legendary journeys that are still part of our collective desire.

There's almost one for each taste. Some people prefer wide, uncluttered horizons and others dream of winding up a mountain. For the latter, there are places like the 90 kilometres of curves in the Transfagarasan, in Romania. There is also to Herminda Pass in the Cantabria region of northern Spain, the Furka Pass in Switzerland, or the Route Napoleon in France. Other essential

roads: the Atlanterhavsveien in Norway, Ruta 40 in Argentina, or the most famous: Route 66, which crosses America.

To come to know some of them more closely, we've consulted Paco Nadal. A journalist and compulsive globetrotter, this expert traveller says Route 66 is obligatory, as a reflection of our culture. "It is so emblematic of literature and music that it's worth travelling leisurely," says Nadal, who hasn't done so completely but in parts. "You quickly get right into some very varied and little known parts of America," he adds.

Its almost 4,000 kilometres, from Chicago to Los Angeles, through states like Missouri, Kansas and Arizona. And without too many road signs. "Everyone expects it to be like the pilgrim's Road to Santiago, but in fact there are only a few of the original stretches remaining," says Nadal, the author of *Pedro Páramo ya no vive aquí* (RBA, 2010). He recommends travelling slowly, with an idea of



The Great Ocean Road: it covers 243 kilometres in southern Australia, along the Pacific coast from Greelong to Portland, with marvellous rock formations and all kinds of beaches.



what you're looking for but open to improvisation. "It's a good idea to prepare beforehand, with guidebooks and novels, but not with an Excel spreadsheet," adds this traveller who knows what it's like to just wander leisurely without a return ticket.

Neither should anyone be in a hurry while driving along the first-mentioned route, the Transfagarasan, in the Carpathians. Sometimes because it can be snowed in or because it's worth making a stop at Poenari Castle, said to be the residence of Vlad the Impaler, the prince who inspired *Dracula*, by Bram Stoker.

Among those other drives, the Route Napoleon covers the 325 kilometres that the emperor travelled from Antibes, the port he came to after his exile on the island of Elba, to Grenoble. Mention should also be made of the near-unpronounceable Atlanterhavsveien, in Norway, which links a number of small islands in just 8.72 kilometres: according to its creators it is "a perfect combination of nature and engineering." Or, in the antipodes, the Great Ocean Road: it covers 243 kilometres in southern Australia, along the

Pacific coast from Greelong to Portland, with marvellous rock formations and all kinds of beaches.

And the list must include the Romantische Strasse in Germany –with the name of a street because, in spite of its 410 kilometres, you have the impression of traversing an avenue– or Route 40 in Argentina, a 5,200-kilometre stretch between Cabo Vírgenes, in the south, to the border with Bolivia. It's one of the highest roads in the world, and to give an idea of its dimensions, it traverses 21 natural parks, 18 rivers and some of the most solitary country in the world, as is only proper for the immensity of Patagonia.

But all these examples –as pointed out by Juan Andrino, an engineer with the Spanish General Directorate of Traffic– merit some caution before setting off. "Improvisation is not a good guide," says this professional as he enumerates some basic requirements: make sure the vehicle is in good condition and the driver in equally reliable shape, draw up an itinerary and the hours to be spent driving, and make sure the passengers and their baggage are correctly placed.

Before setting off it's a good idea to take some precautions. "Improvisation is not a good guide," says Juan Andrino, an engineer with the Spanish General Directorate of Traffic.





*A review of the development
of road safety*

Text: Eva Fernández

In October of 1769, Nicolas-Joshep Cugnot tried out the world's first car, in the streets of Paris. It was a kind of tri-cycle fitted with a steam machine and he called it Fardier à vapeur ("Steam Car"). Since that time 249 years ago, the automobile has undergone an unprecedented development. And human beings have become accustomed to living surrounded by those "machines that move."

But those beginnings weren't easy. When cars began to replace horse-drawn carriages, people were very concerned about allowing people to control the driving: they thought that two brains, the animal's and the man's, were better than just one. At that time it was thought that horses helped avoid col-

lisions and that humans would be lost without them.

And they weren't far off the mark. With all the advances that the automobile brought, it also entailed new dangers and risks for people. Thus at the start of the 20th century auto collisions became the principal cause of accidental death in the United States. In almost all of them the driver, and not the machine, was to blame.

Driving too fast or under the effects of alcohol were common in 1900, and caused a great number of collisions and deaths on the highways. That's why it was necessary to create traffic safety norms and make them known so as to control the way people behaved when they got into the driver's seat.

When the car was invented, people were very concerned about allowing people to control the driving because they wouldn't have help from the horse.





istanbulphotos / Shutterstock.com

At the start of the 20th century automobile collisions became the principal cause of accidental death in the United States.

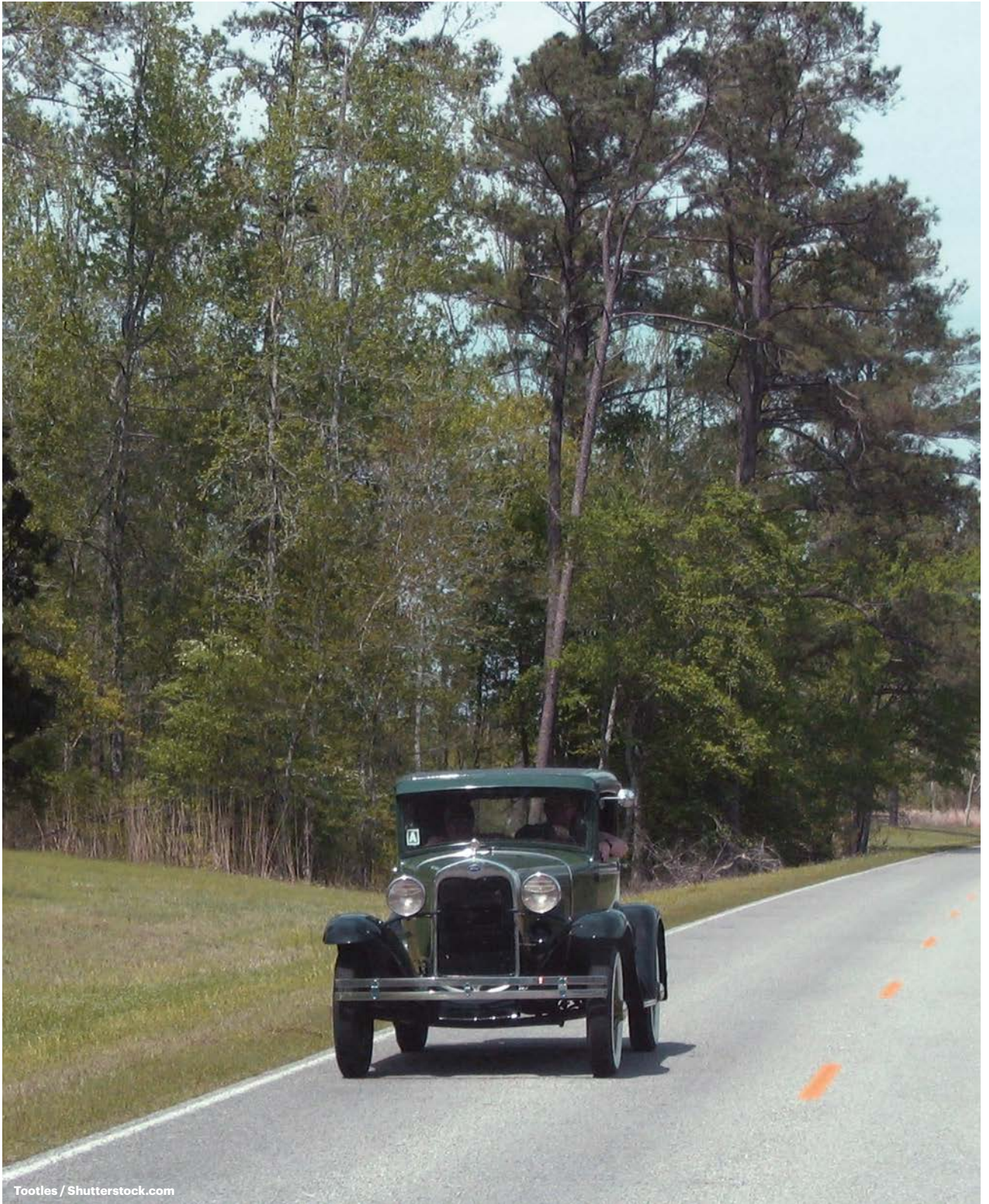


Automobile accidents: the principal cause of death in the US in the 20th century

On 17 September 1900, Spain approved the “Regulations for the Service of Automotive Cars on State Roads.” Its Article 2 defines an automobile: “The term automotive car, or simply automobile, includes carriages moved by mechanical force.” To be able to travel on roads they had to have a horn or sonorous bell, lamps in the front, indicators that light up at night, and two braking systems to stop the motor vehicle. Additionally, this code limited speed to 28 kilometres per hour on intercity roads and 15 kilometres per hour on city streets.

Later came the traffic lights and road signs. The first traffic light appeared in 1923 thanks to the American inventor Garrett Morgan, who patented a crude, hand-operated device that was used to direct traffic on two avenues: the words “stop” and “go” indicated the streets where vehicles should brake or continue their course. Two years later, General Electric bought Morgan’s patent for 40,000 dollars and developed the street light system we all know today.

Traffic signals in the United States are based on the Manual on Uniform Traffic Control Devices of 1935[GML1], which standardised the different traffic codes in the country. In Spain, on the other hand, designs of traffic signals were unified in con-



Tootles / Shutterstock.com



In Spain in 2017, with more than 32 million cars on the road, there were 1,200 fatalities. In 1960, when there were 1 million vehicles on the road, there were 1,300 traffic deaths.



junction with those of 65 other countries in Europe, Asia and Africa thanks to the Vienna Convention on Road Signs and Signals, of 1968. It was vital for improving highway road safety measures and standardising norms and symbols.

The three-point safety seatbelt may have saved 10 million lives

For its part, the automotive industry, aware that there was increasing concern about the safety of its vehicles, began to take steps to make them safer, and carried out experiments to determine how

collisions affected the human body. Thus in 1930 the first cars with hydraulic brakes came on the market; and in 1959 Volvo began installing the three-point seatbelt, which is estimated to have saved 10 million lives.

Governments also got involved to make sure that safety regulations were enforced, thus reducing accidents. They began to impose fines on reckless drivers, mandate that all new vehicles have certain safety systems such as airbags or padded dashboards, and made the use of safety belts obligatory.

Since 1992 both drivers and passengers in Spain must wear seatbelts, and all

vehicles registered since that date must have them installed in all the seats. It has been calculated that this measure reduced by 90% the risk of dying in case of a head-on collision, and by half in the case of rear-end collisions. While at first it took time for people to get used to buckling up their seatbelts, nowadays almost nobody questions the importance of this habit.

Following work on traffic norms and the safety of cars, the next step was to adapt roads to driving. Little by little they have been improved through systems that help reduce the number of accidents: vertical and horizontal signposting, crash barriers, better lighting... The state of



infrastructures is an important factor in guaranteeing safety.

In 1989 there were 5,940 deaths on Spanish roads

All this development in road safety has reduced the number of accidents over the years. In 1960, the first year from which there are statistics in Spain and when there were 1 million vehicles on the road, there were 1,300 traffic deaths. In 1989 there were a record 5,940 deaths in accidents. And in 2017, with more than 32 million cars on the road, there were 1,200 fatalities.

There were many factors that helped improve safety, on both the technological and legislative levels and through driver education: today it is normal to put on a seatbelt or not let too many people into a car, but until recently this was not so normal. But there still remains a great deal to be done if we are to achieve zero deaths on the road.

What is the future of road safety? A few clues: rear-view devices that function via video rather than mirrors, so as to eliminate blind spots; and of course autonomous cars that promise to drastically change the role of the driver at the wheel.

In 1959 Volvo began installing the three-point seatbelt, which is estimated to have saved 10 million lives.



IF YOU'RE GOING TO SÃO PAULO, LEAVE SÃO PAULO

Text: Isabel Garzo

Illustrations: David Sierra

 FERNÃO DIAS



São Paulo

 RÉGIS BITTENCOURT

Juquitiba

a Curitiba

Aparecida



Paraty



Praias de Ubatuba

Ilhabela

It's not that the city doesn't have plenty of very interesting places to visit. Rather, it would be a shame to go home without seeing some of the surroundings. Here are some trips from São Paulo so as to enjoy an unknown Brazil, on the margins of the great city.

1. THE UBATUBA BEACHES

There are not two or three of them but hundreds: small paradises hidden among the tropical vegetation and the mountains. Some of the best known are Domingas Dias, in a half-moon shape, and Itamambuca, the setting for important surfing competitions.

2. THE ISLAND OF ILHABELA

Full of waterfalls, with some 85% of its area

totally unspoiled and a prohibition against buildings higher than two levels, this oasis has resisted colonisation by tourists. And where the vegetation is impenetrable, you might rent a sailboat or catamaran.

3. APARECIDA

A town that became a city and a chapel that ended up as the second-largest Catholic cathedral in the world and the main destination of pilgrims in Latin America. All its tourist buildings, such as the Pasarela da Fe and Porto Itaguaçu, are linked to Our Lady of Aparecida.

4. CAMPOS DO JORDÃO

They call it "Brazil's Switzerland" because in July and August it is full of snow that attracts hordes of skiers. And if you're not into skiing, you can take a ca-

ble car to the top of the Morro Elefante for a view of the rooftops of Campos do Jordão. You can also visit its beer factory. All very Central European.

5. PARATI

This is a lovely colonial city whose streets are inundated when the tide rises, something unique in the world; the houses are safe because they are built on a higher level. After each full moon, the cobbled streets are clean thanks to this original invention of Portuguese colonists.

6. ECOLOGICAL WATER PARK AT JUQUITIBA

The town of Jiquitiba, just an hour and 20 minutes from São Paulo, has an ecological water park: slides and pools in the middle of a dreamlike natural setting.



“WHERE THERE'S A WILL, THERE'S A WAY”

LAIA SANZ

Text: Gema Lozano

Illustrations: Óscar Giménez

Laia Sanz was just two years old when she sensed that her life was going to play out on wheels. On two wheels, to be exact. She had hardly learned to walk when she got her first bike. Shortly before that she had her first experience with motorbikes: in spite of being so small, she rode behind her father on his motorcycle. Although it was at age four, when she tried her brother's Cota 25, that she knew her future was atop a motorcycle.

She found support from those around her. Her mother encouraged her to take part in a race for children as part of the Catalan Junior Championship. Laia was six, and the contest was held in her hometown, Corbera de Llobregat.

In 1997, riding an 80cc motorbike, she had her first victory in a male championship. During that season she also participated for the first time in an inter-

national female trial competition, with another 50 riders from all over the world.

She loved it, and the following year, at age 13, she took part in the first edition of the Women's Trial European Championship (unofficial). She won, beating older contestants with much more experience, which encouraged her to take part in the Spanish Trial Championship, the only girl in the race.

It was one of many competitions in which she was the exception in a world of men. Her victory in 2000 in the Spanish Cadet Championship –again she was the only female rider– showed that talent isn't a question of gender even in the biker world. Eighteen years after that victory she still says it is her most satisfying to date.

As it advanced, Laia's career seemed unbelievable: at just 24 years old she

had 10 world titles, 9 European crowns, and four victories in the team event of the Trial des Nations. It was at that age that she made her debut in the Women's World Enduro Championship, one of the high points of her career and the step before the Dakar Rally, a childhood dream. In 2011 she was able to take part in the Dakar for the first time, winning in the female class and finishing number 38 overall.

Season after season, Sanz has continued to win titles without losing an ounce of her initial ambition and excitement. The titles in the Women's World's Enduro Championship, the medals in the prestigious XGames, her excellent placings in the Dakar, as well as the many raids and rallies she contested, constitute an impressive record that shows no signs of ending.

Bio

NAME
Laia Sanz Pla-Giribert

BIRTH PLACE
Corbera de Llobregat (Barcelona, Spain)

DATE OF BIRTH
11/12/1985

CURRENT RESIDENCE
Seva (Barcelona, Spain)

AGE
32 years

PRESENT TEAM
KTM

Laia Sanz list of records

13

Women's
World Trial
Champion-
ships

10

Women's
Trial Euro-
pean Cham-
pionships

6

victories
in the Wo-
men's Trial
des Nations

8

victories
in the Dakar
Rally (mo-
torbikes)

5

Women's
Enduro
world
titles

4

gold medals
in Women's
Enduro X
in the X
Games

1

silver medal
in Women's
Enduro X in
the X
Games

9

th
overall
placing in
the 2015
Dakar Rally



Ivan Garcia / Shutterstock.com

Laia and cars

From time to time Laia parks her motorbike and takes a spin on four wheels. In 2015 she took part in several events such as the Barcelona RX of the Barcelona-Catalunya Circuit, the SEAT Eurocup, the 500 Kilómetros de Alcañiz and the 24 Horas de

Barcelona de Automovilismo. And everything indicates that there will be more in the future. In fact, Laia Sanz has said one of her big dreams is to contest the Dakar in an automobile.



Maxisport / Shutterstock.com

The toughest test

Besides her impressive list of trophies, Laia Sanz has many accomplishments that make her one of Spain's best athletes. One of them is to have become the female driver who has completed the Dakar Rally, the toughest test, the most times (seven). And she has suffered during that race. In 2016, because of a throat in-

fection, she had to drive with a fever and dizziness, which caused her a serious fall. In spite of the resulting torn collar bone ligaments, she finished the race in a more than dignified 15th place. Laia demonstrated one of the maxims that has governed her career: "Where there's a will, there's a way."

Tech trends

Refuelling from the sky



Petrol stations are not going to disappear. Or at least not for the moment. But there is going to be development in the way we receive fuel for the vehicles we use.

One of the main sources of energy is 150 million kilometres away and consists of hydrogen, helium and other elements. The sun is there, unshakable, waiting for someone to snatch up its inexhaustible wealth. (Or it's improbable we'll be around to see that eventual exhaustion.)

If the sun is there, we'll have to take advantage of it, and that's what they're doing at PROVE Lab, an automobile research laboratory that has launched a prototype called Dawn.

Dawn wants to become the fastest solar-powered car in the world. The aim is to reach 100 km/h through the exclusive use of its solar cells, with no kind of battery at all or any other device to provide energy.

It weighs 200 kilos and has an extremely futuristic look, with aerodynamics that make it resemble a high-speed motorboat.

You say it's highly unlikely any of us will end up driving a car like this? Correct. That these technologies will be part of our future vehicles? Even more correct.

Refuelling from the earth

While this isn't the first project of this kind, it is the most recent. A previous effort, from Solar Roadways via its solar roadway in the United States, didn't achieve the desired efficiency and also suffered from electrical malfunctions and breakage in too many solar panels.

Now a new attempt is being made in China on a two-kilometre stretch of road near the city of Jinan. The road consists of three layers. The top one is made of transparent concrete and is built to support the load of the cars and their friction. The second consists of reinforced solar panels, but because the concrete is transparent, the light reaches the solar cells on the car without any trouble. Finally, the base isolates the whole from the moisture of the earth and preserves the electronic installation.

Its creators claim that, in addition, the panels will have modules for wireless charging, the idea being that in the future, electric cars can recharge without the need to be plugged in.



Subscribe to my car



If you're willing to experiment with the ownership of the car you drive, you should know that there are automobile subscription services. And no, we're not talking about the shared electric vehicles that can be found in some cities. We're talking about your own private car.

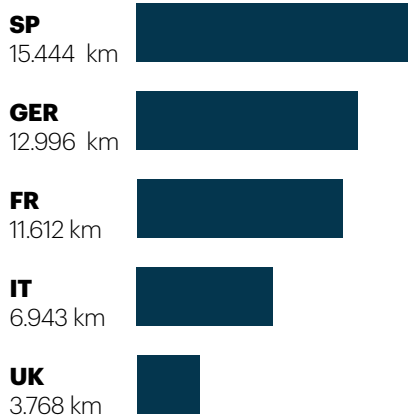
Volvo offers this service, which it has called Care by Volvo. For a monthly quota, which in Spain begins at 685 euros, the user can drive a Volvo CX40. He can change the car every 24 months, and the insurance, vehicle inspection, repairs and maintenance are all included.

And there's more: the service includes a personal assistant, a baby sitter, a driver, home delivery of pharmaceuticals and a tour guide.

The service is also offered in Sweden, the UK, Germany, Italy, Norway, Poland and the United States, although many other countries (not yet revealed) will join the list.

Other brands are experimenting with similar services: BMW, Mercedes-Benz, Cadillac and Porsche have similar schemes although they cost considerably more.

Some data



Have you ever wondered which countries have the most roads? Well, Eurostat is going to answer that question. The European Office of Statistics has counted what it classified as motorways, which are roads that meet three criteria:

- Two roads that are separated for each direction, except in special points or temporarily due to repairs on their surface, among other circumstances.
- Roads that are not crossed on the same level by any other road, railway or pedestrian walk.
- The use of special signs to indicate that the road is a motorway and to exclude specific categories of vehicles and/or users of the road.

Well, the winners in Europe are Spain, with 15,444 kilometres; Germany, with 12,996; and France, with 11,612. These three are the only ones with more than 10,000 kilometres, followed by Italy with 6,943 and the UK with 3,768 km.

Curiously enough Turkey, with the largest surface area in Europe (783,562 km²), has just 2,542 kilometres of motorways.

Precautions without the music

Willie Nelson sang *On the Road Again* in 1979. Since then it has become a hymn to the open road all over the world, and an icon of country music.

Because fashions pass, we no longer hear folk music accompanying requests to keep an eye on the road. We're in the digital age and each individual carries his own music on his own devices.

The Brazilian toll road concessionaire Arteris has created an app for cell phones that could save your life. It's called the Speed-O-Track and it's simple. It lets you hear music on the Spotify streaming platform but with a twist: when it detects that you're driving over the speed limit, the music also speeds up, to ridiculously uncomfortable velocities. When you drop back down under the limit, the music plays at its normal speed. Simple, right? And if you want to, you can listen to Willie Nelson's unforgettable song.



Too many robots



The electric car is advancing on several fronts. One of them is commanded by Elon Musk, who has made one of the most aggressive commitments to implanting this type of vehicle in its driverless version.

Musk has spoken about the progress of Tesla, the firm in his conglomerate that handles these matters, and among other things he recognised that "humans are undervalued."

Musk was one of the entrepreneurs who made the heaviest commitment to extreme automation of his factories. But the constant financial losses and frequent problems on the assembly line led to delays in building the Teslas vehicles that, in turn, are yielding disappointing economic results.

Musk has decided to stop production between four and five days to, among other things, redesign that assembly line and give more importance to the human workers.

With these changes, Elon Musk says that Tesla will stop losing money in the coming months.

CLIMATE CHANGE WILL ALSO COME TO ROADS

We should adapt our infrastructures due to the increase of extreme weather events, according to European studies

Text: Néstor Cenizo Vicente





Climate changes could accelerate the deterioration of roads and increase the risks of severe damage, according to a report by the JRC.



Changes in temperature and rainfall, along with extreme weather events caused by climate change, will have effects everywhere, and roads are no exception. There will be more torrential rains or higher summer temperatures and heat waves that affect the conservation of the pavement. Governments are aware of this, and many of them have developed strategies to mitigate the effects of climate change on their roads.

It's a global problem: a question of calibrating the intensity of those effects in each place. In Europe, the report titled *Impacts of climate change on transport: A focus on road and rail transport infrastructures*, by the Joint Research Centre (JRC) of the European Commission, studied the vulnerability of the system in 2012, and concluded that if the problem is not faced in new strategies of design

and maintenance of roads, the changes in climate could "accelerate their deterioration, and increase severe damages risks, traffic interruption and accidents that could, in turn, affect economic activities" in some regions.

The Weather project, financed by the 7th Framework Programme for Research and Technological Development, quantified the costs of extreme weather events. The estimated cost of road transport in the EU is 1.8 billion euros each year, some 80% of which is the result of damage to infrastructures. On an aggregate level, these costs should not rise excessively in Europe because of the effect of climate change, but on a regional or disaggregated level the consequences could be "severe," according to the JRC study.

For example: while damage from rain could increase slightly, the milder



winters will help offset this effect. On the other hand, a rise in average temperatures could require changes in the design of the pavements and in maintenance operations, and some roads could be exposed to extreme precipitation, flooding, increased temperatures and even a rise in the sea level.

The report from the Working Group of the Ministry of Public Works

In 2013 this question in Spain was studied by a Working Group of the Ministry of Public Works, which analysed the needs to adapt the backbone network of transportation infrastructures. The report took in 27,300 kilometres of the backbone network of highways that are part of the Trans-European Transport

Network, and is predicated on the fact that climate change will bring certain extreme weather events of greater intensity (short rains, flooding) and frequency (droughts, heat waves).

The study stresses the increase in localised damage that could be caused by slope failure, which will be more frequent in the north and southeast parts of the peninsula because of an increase in the intensity of precipitation, which makes it advisable to care for drainage and protect existing works.

To mitigate these effects, it advises revising current norms and recommendations about designs of earth works, and recommends “not ignoring vigilance and preventive maintenance.” In the medium term it requests that the design of these slopes be adapted and that surfac- es be shored up to meet the lower rainfall

and the rise in maximum temperatures, which bring a risk of non-structural ruts and fissures.

The role of the Spanish Office of Climate Change

We can’t ignore that the relation between the environment and highways is bi-directional. According to a report by the European Asphalt Pavement Association presented to the European Parliament, “each kilo of CO2 invested in the paving/ rehabilitation of a highway can avoid the emission of 36 kilos of CO2 from the transport of vehicles that drive along that highway.”

For this reason, there are experts who ask that greater importance be given to the institutions monitoring climate change. “The new policy of conservation of roads in Spain should be designed by the Spanish Office of Climate Change, which should also assume control of the results that are obtained,” says a professor of Highway Engineering, Miguel Ángel del Val, in his blog *No solo carreteras*.

Valvanera Ulargui, who is director general of this office, tells us that the transport sector is one of the priorities for the National Plan to Adapt to Climate Change and that since 2013 the environmental evaluation of the projects must include measures “to mitigate their effect on climate change and allow them to adapt to it.” At present the office supports two projects for the development of the National Plan in the transport infrastructures sector: one of them seeks to identify those parts of the backbone that are potentially most exposed; the other concentrates on collecting information about climate change and inundations so as to adapt the design and analyse the safety of sensitive structures.

The report by the Working Group concluded by recommending that climate change be taken into account when designing and maintaining the transport system, and Ulargui thinks that “without any doubt we’re taking steps in the right direction.” Climate change is a fact, and it is urgent that roads be prepared for it.

Curiosities



Martin Fisch

No cars downtown?

Less contamination. Less noise. More collective peace. Reducing driving in urban centres seeks not only an environmental benefit but cities that are more pedestrian-friendly. “A new model of more sustainable mobility that’s more respectful of people’s quality of life,” says the Madrid City Hall about its remodelling of the emblematic Gran Vía. And the trend to limit or restrict traffic in city centres is growing.

As could be seen at the World Economic Forum in February of 2017 (www.weforum.org), Madrid, Oslo, Paris, Hamburg, Copenhagen, Athens, London and Brussels are some of the European points of reference when it comes to applying these measures. Further afield, Chengdu (China), Vancouver (Canada), Mexico City and New York (USA) are outstanding. Within five years, several important cities will have eliminated cars from their centres. In this sense –as explained to Abertis by the director of *El Mundo Ecológico*, Antonio Quilis– it’s urgent “to

make all the actors in the transportation network aware that they must adopt sustainable models of mobility. It’s clear that private drivers must be educated to use public transportation and public administrations should facilitate this.”

And he adds: “Companies must be given incentives to use clean alternatives, so that there will be fleets of vehicles with zero emissions, and they must find new solutions for delivering merchandise. A key factor will be to promote cycle logistics.”

Mention is often made of Fabio M. Ciufini, author of the *Research proposal for a city without cars*, which in the 1990s already indicated how a city without vehicles is a calmer and more efficient place, both economically and socially. Yes, very soon and in lots of places, bicycles will be seen all year long.

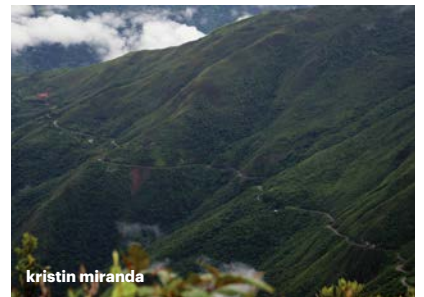
Five roads not appropriate for heart patients

Yes, they exist and there are people who use them. But they produce real terror. They are extremely dangerous roads, all over the world. Unlikely places where the course is like a tightrope and sometimes even defies gravity. Here are five of them, and let people with heart conditions beware:

1. Did you know that Bolivia is home to what's called the "carretera a los Yungas" or the "carretera de la muerte," (road of death), 80 frantic kilometres between La Paz and Coroico? A very narrow road almost 5,000 metres high, with no guard rails. As its name indicates, the accident rate is atrocious.
2. *The Guardian* has considered the Atlantic Road the best in the world. This is the Atlanterhavsveien, in Norway, part of National Road 64 that links the Eide and Averøy archipelagos, and connects this latter island with the Romsdalshalvoya peninsula. Eight kilometres that cut through the ocean –on occasions with some splashing– and over some bridges more appropriate for an amusement park.

3. Have you heard of Gouliang Tunnel in Henan, China? This impressive work of engineering was carried out by untrained fieldworkers to end their isolation in the mountains. The narrow tunnel –five metres high and four metres wide– was opened to traffic in 1977 and attracts the most daring tourists. It's just a kilometre in length, but seems endless.
4. The Iroha Zaka road in Japan is also on everyone's fear list: 218 zigzagging kilometres in a single direction, descending from Nikko to Lake Chuzenji. Make sure you've got plenty of brake fluid.
5. The 48 curves of the Paso Stelvio in Italy –between Valtellina and Merano– are 24 kilometres at an average grade of 8%. A classic for cycling. And you'll probably even burn up calories at the steering wheel.

And as always, even if not covering itineraries as horrifying as these, we recommend the greatest caution. Have a good trip.



GPS for liars in Nepal

According to an app called The Himalaya Database, 8,306 people have climbed Everest. This count goes from the first recorded ascent in 1953 to the latest mass climbs. For some years now, the so-called Top of the World has had a universal appeal, not only for professional mountaineers but for fans and adventurers of all kinds. More and more people show up in this corner of Asia to fulfil the dream of reaching the top of the world's highest mountain, at 8,848 metres. But that urge has brought unexpected consequences: people dead or injured, a smaller mountain of garbage in this pristine setting, and the rise of prosperous businesses.

And another aspect common to such circumstances: fraud. The authorities in Nepal –the main route to this peak in the Ma-

halangur Himal range, which borders on Nepal and China– have used satellites and GPS to track several climbers wanting to document their accomplishment. That way they will be safer should any problems arise, and they will be able to prove that they reached the top. “It takes about 20 days and there are locators, although the climb can also be made with Sherpas (the local inhabitants), who carry stuff for the climbers,” says Alejandro Gómez Juárez. A few summers ago this 35-year-old engineer walked to the base of Mt Annapurna, another one of the ‘eight-thousanders’ in the Himalayas. The requirements for proving success are a photo on the summit and the testimony of a Sherpa. Two things that can be easily manipulated, “because at 8,000 metres there are no official cameras or referees.” Against fraud, technology and good faith.





'Invisible' enemies of driving

We know full well that being in top form is essential for an activity like driving. Taking into account the things that can happen in a vehicle, it's essential to have sharp reflexes and pay attention to our body before grabbing the steering wheel. We're not referring to just the way drugs and alcohol can affect our behaviour, but to other ailments that we don't usually associate with the highway but which have a direct influence. All our senses are vital when getting into a car –and if you have some kind of impediment you should be extra cautious– but there are two less visible illnesses that can also influence driving.

What are they? One of them is diabetes, which can cause severe hypoglycaemias or vision problems, ranging from cataracts or retinopathies. A study presented by Spain's General Directorate of Traffic (DGT) finds that this situation increases the risk of having an accident by between 12% and 19%, because a drop in sugar levels causes a decline in psychomotor function.

Another is hypercholesterolemia, having a high cholesterol level. This substance, which is related to heart attacks, should be closely monitored before stepping on the accelerator. Known as 'the silent killer,' cholesterol causes high blood pressure that can result in thrombosis, stroke or heart attacks. This obviously calls into question one's capacity to drive normally. That's why these two diseases –along with other temporary factors like a lack of sleep, the state of one's joints and muscles and even stress levels– can seem to be secondary. But when starting up a car engine they are priorities that demand attention.

THE SOLAR CAR IS ALREADY HERE

Evovelo is a prototype that mixes the comfort of the automobile with the sustainability of the bicycle. You assemble it yourself and it runs off the energy generated by its solar panels

Text: Alberto García

The Evovelo weighs 85 kilos and is two metres long, 1.4 wide and 1.3 high.



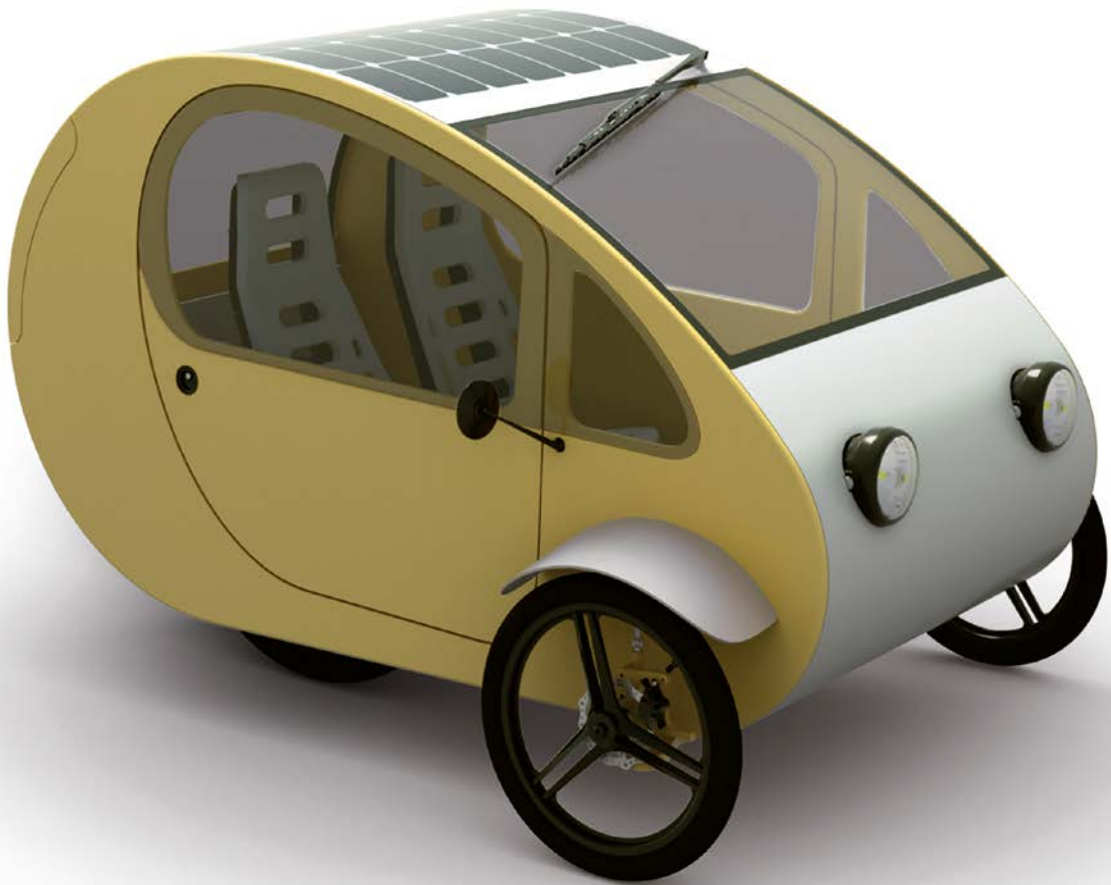
We used to think those stories about recharging cars with a plug was science fiction. Now we realize that they weren't far off the mark: more and more cities and petrol stations have reserved a place for these devices to recharge electrically. And it's been taken a step farther by Evovelo, a prototype that combines the comfort of an automobile with the eco-friendliness of a bicycle. How? By using solar energy for fuel and a light structure that the buyer assembles for himself.

Evovelo was formed to help keep the environment clean. The time was ripe for something of this kind, and this "urban solar car," as they call it on their website, is built from materials that have a minimal impact on our environment and that are cheap to acquire and maintain. "The idea came from a logical equation," ex-

plains Gonzalo P. Chomón, the project's technical director. "It doesn't make sense to use a 1,000-kilo car to transport someone who weighs 80 kilos."

The solution? The Evovelo team, a cooperative that "works as part of the social economy" and consists of four designers and engineers, presented a prototype based on the structure of a bicycle, the most basic system for moving about. "Each day I had to travel 20 kilometres with my children, a distance I couldn't cover by bike but that didn't justify using my own car either," says Chomón. "I thought about it a lot and realised that the factors that would discourage people from using a bike were the physical effort, the weather, the traffic or the impossibility of carrying someone else."

The result of that daily dilemma was Evovelo. The best solution, Chomón re-





Since they started, the Evovelo people have received more than 500 requests to buy a car, and now have 100 prototypes ready for market.



calls, was to combine the advantages of both a car and a bike. To come up with something that was simple, comfortable, cheap and respectful of the environment but that didn't evolve pushing pedals in the rain or sweating up hills before getting to the office. Since he already worked professionally with batteries, the first idea was to do something with these devices and forget about fuel. Then they considered solar energy: "The car is assembled on an individual basis and the roof is made up of solar panels that generate enough energy to have a range of between 30 and 50 kilometres. By leaving the car in the street, it is recharging, and in case there's no sun, the battery – which weighs just eight kilos and is the size of a bag – can be recharged through a simple household electrical plug. With everything topped up, the range goes up to 100 kilometres." They rejected the electrical car option so as not to use non-renewable energies.

The Evovelo weighs 85 kilos and is two metres long, 1.4 wide and 1.3 high. It can reach a speed of 50 km/h and has a hermetic structure, with all the conveniences of a car except for the airbag. "It's about the size of a Smart Car, so it's very easy to park. It is authorised to travel on

any road except motorways, and the automatic propulsion can be augmented by some pedals," the promoter says.

Its oval shape also leaves space for two seats, a boot, and a stick instead of a steering wheel. "It's the next step up from the bike," says Chomón, who complains about all those contaminating vehicles in the cities, and says Evovelo has a more pragmatic purpose: "It's designed for short return trips. The most common kind. We hope it will catch on in urban and rural settings, for both people traveling to their job and for those moving between villages. About 25% of the world's energy goes on transport, and we have no alternative but to change this."

After two years of tests, Evovelo has put 100 units on the road. More than 500 people ordered one during the planning stages, and the firm had to select the lucky ones. "It's a cutting-edge initiative," he says. Indeed, the project received a grant from Harvard University, and has been selected as one of the most innovative by the European Union's InnoSmart prizes. The next objective: spread through Europe and thus fulfil that dream of clean energy, economy and efficiency in transportation that launched the project.

It has a range of between 30 and 50 kilometres and includes a portable battery.



THANKS, GRANDPA

Text: Rafael Caunedo

Illustrations: Michele Marconi

I had just reached the age of eighteen. It was the end of the summer and the calendar showed that there were only three days before I'd begin my first year at university. My grandfather walked over, sat down beside me, and then surprised me by saying he had decided to buy me a car. I thought he was joking. I discussed it with my parents and discovered everything had been worked out behind my back.

When we reached the dealership and were about to open the door, my grandfather took my arm, stopping me on the pavement.

"I'm buying it for you under one condition."

He could have demanded whatever he wanted and I would have said yes without thinking about it. With one foot in the door it would have been impossible for me to refuse.

"What is it?" I asked him.

"That each Sunday you drive me to the cemetery."

My course began in October, and with it the weekly trips to the grave of my grandmother. This was no trouble for me, and even strengthened the relation-

ship with my grandfather, so that there grew up between us a special complicity. At times he brought flowers; other times just love, or he caressed the headstone or kissed the air. It moved me to see him there talking to my grandmother about their things. No matter if it was cold or if it rained, my grandfather never missed a visit that winter.

Until the first week in July.

I remember that day because as soon as we got in the car he asked me if I had enough petrol. I said yes, although he leaned forward to the dashboard to check. He told me to stop at a petrol station and fill the tank.

"We're not going to the cemetery today. I'm inviting you to lunch in Toledo," he said, and gave a couple of taps to the wallet he carried in his shirt pocket.

It was impossible to protest. The glassy, friendly look in his eyes moved me so much that we began the trip immediately. My grandfather was talkative that day, so I only had to pay attention to the traffic and the car's air conditioning to fight the heat wave we were in. The news on the radio about the heat from Africa mixed with my grandfather's memories of his trips to Toledo with my grandmother.



"We even had a reserved table. Always the same one."

He didn't stop talking. I don't think he was aware of the intense heat all around. As a new driver, I paid more attention to the road than to the conversation, but I have to admit that, between one thing and the other, the trip seemed very short.

When we reached Toledo and were driving toward the city centre, my grandfather suddenly shut up. He looked through the window in silence, perhaps evoking a city in black and white. Those narrow streets, the steep hills, the cobblestones... For him it was all flashes of memory.

It was really hot, which made the brave tourists walk slowly. We reached the restaurant anxious to cool down in the soothing air conditioning. I went in first and felt revived. My grandfather stopped behind me in the doorway, panting and blocked. I saw him close his eyes and inhale, flaring his nostrils like gills. He smiled. That was the first time he had smiled all morning. There was an aroma of ovens and soup.

We sat at the table that they had occupied every Sunday for years.

"Let me order," he said.

How can I describe my grandfather's delight at eating that partridge stew? During the two hours we were seated there he seemed to grow younger, telling stories about the time he met my grandmother. He laughed when recalling the crazy things of his youth while he delighted in the sauce. That conversation helped me know him better and, if possible, love him even more.

He proudly paid the bill and we went outside again without much enthusiasm. I drove the car over and, with the air conditioning at full blast, picked him up. The thermometer showed forty-three degrees. I think that was the first time I saw that number on the dashboard of my car. My grandfather leaned back in the seat, loosened his shirt collar, sighed, closed his eyes and cried inside.

We quickly got on the road to Madrid and drove back calmly, with no hurry, listening to his music and my grandmother's. We would have gotten home without

any problems if it hadn't been for a lorry that had some mechanical problems and ended up blocking both lanes of the motorway.

Half past four in the afternoon. Forty-four degrees!

Traffic stopped and the two lines of cars occupied a static world. Far in the distance could be seen the blue glimmer of the Guardia Civil. We were definitely trapped and had no way of getting out of there. We had to wait under that sun that fell like lead on the car's body, which could hardly maintain any coolness inside.

My grandfather's forward-looking character had led me to fill up the petrol tank before leaving Madrid, and so we could allow ourselves the luxury of keeping the engine running so as not to boil inside. I looked on the Internet for information about the accident. Evidently a special tow truck was on its way to open up the normal flow of traffic. I resigned myself and spent time sending Whatsapps while my grandfather dozed.

And then it happened.

Some tapping on the window startled me. There was a girl gesturing with her hand for me to lower the window. Her face was shiny and her grey t-shirt was stained with sweat.

"I'm almost out of petrol, I've been using the backup," she said, pointing toward the car behind her. "I can't stand this heat any longer. I saw your windows were closed and I couldn't help it. Do you mind if I get in?"

I had never had a full petrol tank except that day when my grandfather filled it up.

The exact time and place to happen to meet.

That's how I met Andrea, who in time would become my wife and who today brought our third child into the world. I've spent the day at the hospital but then at the last minute I've come to the cemetery to give thanks to my grandfather for changing plans that day. I'm sure that, somehow, the love that he felt for my grandmother nudged chance and destiny to bring Andrea to me.

A caress of the tombstone and a kiss to the air, and in a few days partridge stew.



HITCHCOCK WAS DRIVING

In several times Hitchcock said that he didn't drive because he was afraid the police would stop him. It was a lie meant to feed the legend

Text: Javier Meléndez

**I don't drive
because I'm afraid
of the police.**



Alfred Hitchcock knew how to promote himself as an artist decades before the creation of the “personal marketing” concept. World-famous for his introductions to the different chapters of the television series that bore his name, he took advantage of any opportunity for self-aggrandizement.

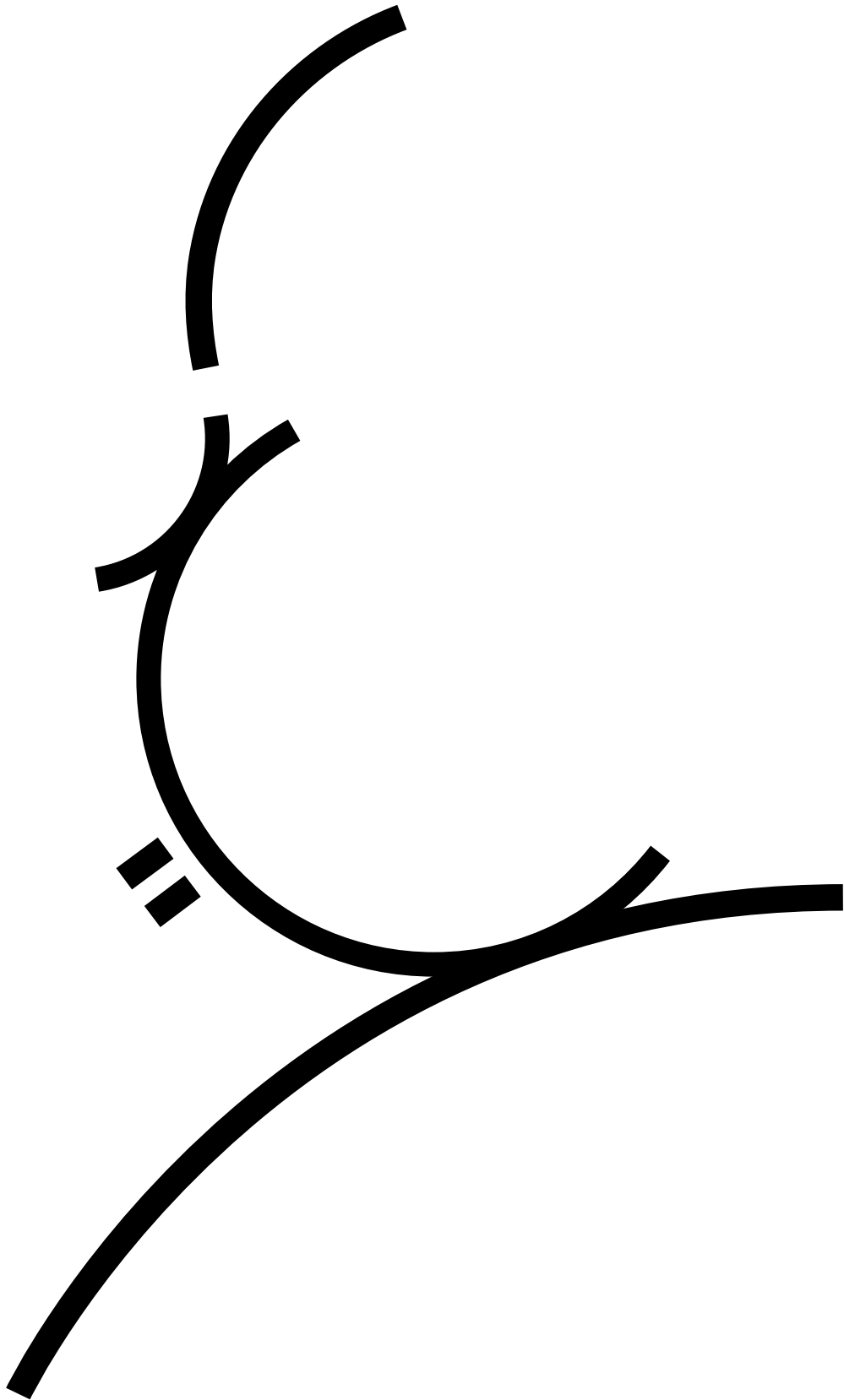
He sensed just what phrases the journalists would stress. One of the most famous: “I don't drive because I'm afraid of the police.”

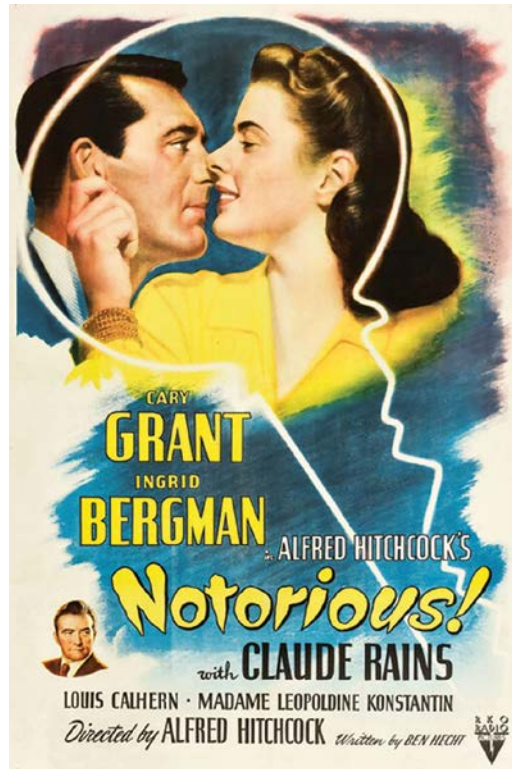
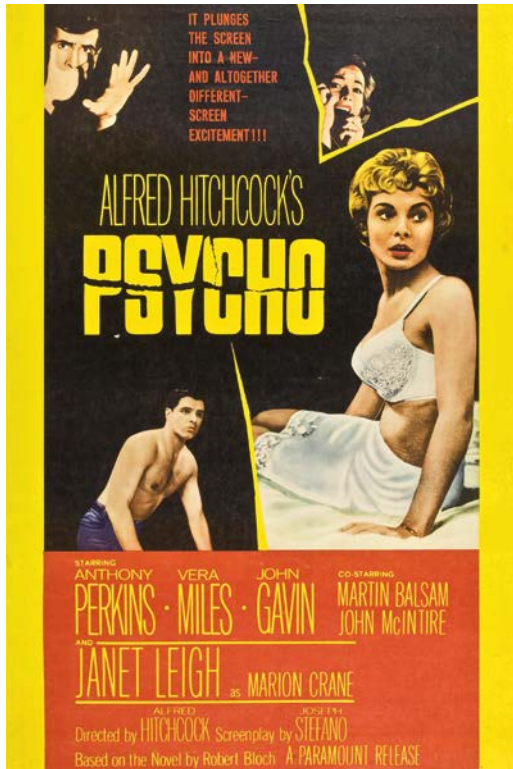
On another occasion he said that he stopped driving when he got to the United States (contracted by the producer of *Gone With the Wind*) because he was afraid of the traffic fines. He was 29. With time, the press created the myth that the director of *Vertigo* never learned to drive.

In articles about Hitchcock, the phrase “I don't drive” was often evoked in reference to the scene in *Psycho* in which Janet Leigh sleeps in her car and a policeman in dark glasses wakes her up by banging on the bonnet. The scene is disquieting. Even though the character is a thief, we find her vulnerable: in the middle of nowhere in the American heartland, an officer of the law wants to know what she's doing there.

A fear of the police comes from the director's childhood. When he was six years old his father asked him to give a note to the police. The officer read the note and locked the little boy in a cell for an hour. The father had written: “Lock the boy up. He's behaved badly.”

The scene in *Psycho*, like so many





others in his body of work (notably *The Wrong Man*), reflects Hitchcock's fear of authority. But it doesn't reflect his fear of driving. His acquaintances and the Hollywood artistic community knew that the director drove his daughter to school and to church. Even today many publications continue to give credence to the legend, even though in 2008 Hitchcock's driving license was auctioned off. It fetched close to 7,000 euros.

The license was issued in California in the name of Alfred Joseph Hitchcock and was valid until 1977 (three years before his death at age 78). The date of validity gives us an idea that Hitchcock intended to go on driving as long as his health permitted. The document includes a photo that shows an aging man, with ashen skin that reflects the flash of the camera.

Hitchcock's real fear of driving was not of getting stopped by the police but of losing control of the vehicle. It was the director's habit to create frightening scenes based on daily situations. (He doted movies with monsters and supernatural creatures.) What could be more everyday for many people than driving?

That's why in some scenes Hitchcock's characters are afraid of losing control of the steering wheel or of not being able to drive because they are in the co-pilot's seat. They speed along narrow roads on the edge of the precipice.

Cary Grant is the favourite actor for getting into scrapes with a car. His face was versatile: he could appear dignified and sure of himself one moment, and then suddenly appear terrified and even ridiculous.

On two occasions the British actor is co-pilot when the female lead is driving dangerously.

In *Notorious*, the character played by Ingrid Bergman drives under the effects of alcohol. Grant keeps looking apprehensively at the speedometer while he smokes to calm his nerves. When Bergman steps on the accelerator, Grant moves his hand to within centimetres of the steering wheel. The adventure ends when a policeman orders the car to stop. In this scene the officer is not a disquieting figure but a guarantor of public safety.

In *To Catch a Thief*, Grant is in the seat beside an audacious and very young Grace Kelly, who steps on the gas to elude the car that's following them. Grant grabs his knees forcefully and grimaces ("we almost



crashed”) when Kelly takes the curves along the cliff edges on the Côte d’Azur.

In *Suspicion*, it is Grant who drives dangerously near a precipice, which upsets Joan Fontaine, desperate because she thinks her husband (Grant) may be a murderer.

In *North by Northwest*, Grant drives under the influence of the alcohol that the evil men commanded by James Mason have obliged him to consume. Grant’s gesturing would make the scene comic if it were not for the fact that he is in danger of a deadly accident if the car were to run off the cliff.

Hitchcock was an expert in bringing his own fears to the screen. It’s not hard to imagine him nervously driving along ancient, narrow stretches of roads without guardrails, the kind we now regard as

obsolete as we drive along our modern superhighways.

Hitchcock used cars not only to create suspense but as a complement to his characters. He directed during the so-called Golden Age of the Automobile, and over the course of his career was able to reflect the development and aesthetic of cars, using the most modern models of the time.

Outstanding among them all is the 1950 Aston Martin DB2/4 coupé that the sophisticated Tippi Hedren drives in *The Birds* (1963). It was already 13 years old but had a refined, timeless design. The elegant Hedren deserved no less. It is in this vehicle that the stars of the film flee the town that has been infested by birds, wondering whether the bonnet will resist their attacks.

Hitchcock used cars not only to create suspense but as a complement to his characters.





ZEBRAS IN THE STREET

Text: Alberto García

A few months ago the hashtag #justaddzebras was a success in the United States thanks to the TV comedian John Oliver, who joked about this movement.



Moving around La Paz is chaos, whether inside or outside a vehicle. Its hills, many markets or its 3,640 metres in altitude make things complicated. You have to get accustomed to an elevated heart rate, legs that seem to weigh extra in that thin air, and all the aromas, sounds and colours of the capital of Bolivia, with its 2.7 million residents. All this could be upsetting to urban planners and traffic managers. And at times it is. But 17 years ago someone improvised a project that has become an emblem of the country. We're talking about Proyecto Cebra de Educación Urbana (Zebra Project for Urban Education), a different way of teaching traffic safety along the main thoroughfares.

The idea is simple: from "their" pedestrian crossings, people disguised as zebras direct walkers and drivers. How? But teaching them what they have to do: by stopping traffic when the light is red for cars, and by waiting on the pavement when it's the turn of the pedestrians who are waiting. Otherwise, these "zebras" roll around on the ground while they're waiting to take action, harangue the masses with posters that thank them for obeying the rules, or whinny at the bad behaviour of their human companions. They also click their hoofs when someone does things the right way, speak words of support, and warn people about basic precautions (and obligations) such as buckling up seatbelts or not talking on the cell phone while driving.

It all began in 2001 with just two

"zebras." It was dreamed up by two theatre students. Soon they were joined by a "mother zebra," played by ballerina Kathia Salazar. She made the project prosper and spread by applying more grace than a mechanical traffic cop ever could: she wanted to teach participants an artistic language, theatre, expression and dance. And so it grew, beyond anecdote and scepticism, to be designated a Cultural Heritage of Humanity in 2014. It is not only there on the street level but has been enshrined in municipal murals and diptychs. And it has reached other cities such as Santa Cruz de la Sierra, Bolivia's second city (1.4 million residents), Tarija and Sucre.

"The most interesting thing is that the kids themselves have adopted the attitude that the habitual aggression and shouting in La Paz are not the way to solve problems. In the beginning some zebras were beaten up or even run over, but little by little things changed and today it is the pedestrians themselves who defend them," Salazar declared in an article in the Spanish daily *El País*. Today she is a councilwoman in the La Paz city hall and secretary of the Commission for Human and Cultural Development.

On the municipal website she describes her job, comparing it to the work she began on the streets: "My presence on the council represents the spirit of the Zebra attitude and civic culture. I want to encourage people to go on building in a space where all of us can live with har-



Matyas Rehak / Shutterstock.com

In 2014 it was designated a Cultural Heritage of Humanity and now it is reflected in the streets and in municipal murals and diptychs.



mony, respect and love. My contribution as ‘mama zebra’ on the council promotes that: incentivizing a culture of peace and establishing relations with everyone so that, together, we can fully develop our values, rights and responsibilities.” For the moment, in addition to ordering traffic, the project has given some duties to many young people who were adrift. “We want it to be a means of integrating young people. In La Paz many of these kids wouldn’t have a chance. But when dressed as zebras, we’re all equal, we don’t ask questions and we wear the

same stripes,” she told that newspaper.

In 2015, this herd was constituted as the Club Cebra. Its motto: “Zero complaints, full action.” And a few months ago its influence reached the United States, thanks to the TV comedian John Oliver, who mentioned the movement, along with the hashtag #Justaddzebras, which became one of the most popular on Twitter. According to Oliver, everything worked better if you put on a zebra head. It may have been a joke, but in Bolivia it’s being demonstrated in the traffic, and in spite of geographic and social adversities.

Corporate



Editorial

José Aljaro Navarro

Chief Executive Officer of Abertis

Billions of people around the world travel every day and this traffic continues to grow. Today there are 1 billion vehicles on the roads. The World Economic Forum estimates that in 2025 this number could increase by 600 million, and that in 2050 it could reach as many as 4 billion vehicles.

In this second issue of *On the Road* we want to deal with subjects that Abertis feels are necessary to better understand the challenges of this increasing traffic and deal with the solutions to manage it in the most effective and sustainable way possible.

The road safety of everyone –whether drivers, passengers or pedestrians– is the priority of the Abertis Group. As we report in these pages, nearly 1.25 million people die in accidents each year on the world's roads. At Abertis we want to make our contribution toward alleviating this plague. That's the reason behind our commitment with UNICEF to reduce traffic accidents, especially among children and adolescents, in the most vulnerable countries.

We believe that by applying the latest technological advances, and decisively meeting the challenge of eliminating these accidents, we will be able to have more modern and safer roads.

We hope you'll find this issue of the magazine interesting.

Abertis and UNICEF join forces to fight against child accidents in the world

Nearly 10 million children are injured or disabled in traffic accidents each year around the world. More than 3,000 die or are injured every day on the road.

Abertis and UNICEF announced in New York advances on their joint global project Rights of Way, aimed at preventing traffic accidents among children all over the world.

Nearly 1.2 million people die in road traffic crashes each year. The injuries from these kinds of accidents are the main cause of death among children and young people over the age of 10 all over the world. More than 3,000 children die or are injured on the world's roads every day, according to the Child Health Initiative.

In October of 2017, UNICEF and Abertis announced an in-



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novative partnership commitment of 3 million dollars to prevent the principal cause of death in school children: road traffic accidents. The commitment comprises 1 million dollars per year over three years and is the largest plan for child road safety.

The partnership aims to strengthen and extend the work done by UNICEF to protect children on the world's roads and provide a safe journey to school. UNICEF considers Abertis to be a valuable ally, in view of its commitment to road safety and its campaigns adapted to the needs of the most vulnerable road users.

With the aim of developing different national responses to this global challenge, the programme will first be introduced in the Philippines and Jamaica, where, like many medium and low-income countries, child road traffic accidents represent a public health problem.

In the coming weeks Abertis and UNICEF plan to develop the Rights of Way project, with the aim of extending actions of this agreement in key countries for the Group like Brazil, Chile and India.

The role of UNICEF

As the world's leading organization for the survival, protection and development

of children, with the mandate of guaranteeing the Rights of the Child, UNICEF focuses on three main areas:

Providing a safe journey to school by creating limited speed zones, safe infrastructures, educational campaigns and by raising public awareness.

Ensuring safe school transportation worldwide: through legislation, by strengthening transportation systems and stressing safety (regulations for school buses, safety belts, etc.).

Promoting the use of helmets by children (especially in those countries where motorcycles have become the main means of family transport) through awareness-raising campaigns, providing helmets, etc.

Collaboration with the Institut Guttmann

Within the framework of this agreement, Abertis has incorporated a new area of collaboration with the Institut Guttmann, which will combine the best practices of the three institutions in child injury prevention in traffic accidents. Two medical teams from the Institut Guttmann specialised in the treatment of neurological injuries (spinal cord injuries and acquired brain damage) will travel to different countries to

carry out training and advisory sessions with local doctors on best practices for the prevention and treatment of road traffic injuries.

The teams will initially visit hospitals in the Philippines and Jamaica, countries included in the UNICEF-Abertis agreement where, like in many other low and middle-income countries, the child road accident rate is a public health issue. There are plans to increase the number of countries that will benefit from this agreement in the future.

A global problem

Besides their impact on public health, child road traffic injuries directly shape the development of countries: traffic accidents are estimated to have a cost of 3% of GDP, with economic losses in low- and middle-income countries equivalent to 5% of GDP.

Low- and middle-income countries account for 90% of the world's road traffic fatalities, although people in these countries only own around half of the world's vehicles. The risk of dying in a road accident also depends to a large extent on where people live: Europe has the lowest number of road traffic deaths per 100,000 inhabitants, while Africa has the highest rate.

100 million euro investment in Autopista del Sol, Chile

Abertis will widen the road by building a new lane between Santiago and Talagante.



Last March, Abertis' subsidiary in Chile, VíasChile, reached an agreement with the country's Government to carry out new investments in Autopista del Sol (Ruta 78) in exchange for an extension of its concession by almost two years.

The new investments, which will amount to 110 million euros, consist of the widening of the toll road through the construction of a third lane between Santiago de Chile and Talagante, and some complementary works. This ambitious investment plan, along the whole extension of the toll road, will make it possible to solve the problems caused by the traffic increase in recent years, and also to alleviate congestion and improve road safety. Works are expected to be completed in 2020.

In exchange for these investments, Autopista del Sol has been granted a 22-month extension in the concession term until 2021.

Autopista del Sol (Ruta 78)

Autopista del Sol is the main road link between Santiago de Chile and the maritime city of San Antonio, the largest port in the country and with an area of influence that runs from the centre of Chile to the province of Mendoza in Argentina.

Abertis in Chile

Abertis is the largest operator of toll roads in Chile by volume of traffic, managing more than 770 kilometres among six concessionaires through VíasChile (of which 80% is owned by Abertis and 20% by a firm that is the property of the Abu Dhabi Investment Authority-ADIA):

- Autopista Central, part of the North-South axis of Santiago (60 km.) and the urban toll road with the greatest traffic in the city.
- Elqui, which connects Los Vilos-La Serena in the north of the country (229 km.)
- Rutas del Pacífico, which links Santiago with Valparaíso and Viña del Mar in the central part of the country (141 km.)
- Autopista del Sol (132 km.), which connects Santiago de Chile with the port of San Antonio.
- Autopista Los Libertadores (119 km.), which links the capital of the country with important cities to the north of the Metropolitan Region of Santiago.
- Autopista Los Andes, which connects the city of Los Andes with Ruta 5 Norte de Chile and the port of Valparaíso (92 km.)

Abertis signs investment agreements for its toll roads network in Argentina

The agreement considers an overall plan of nearly 680 million dollars to improve roads.

Last 4 July, the Abertis Group closed two agreements with the Government of Argentina to extend the concession contracts of its subsidiaries Autopistas del Sol (Ausol) and Grupo Concesionario del Oeste (GCO), in exchange for a global investment plan of 680 million dollars (over 584 million euros).

Both concessionaires announced in 2017 that they had formally begun the process of renegotiating their respective

contracts with the Ministry of Transport. This agreement means the recognition of the pending rebalances. By the agreements reached, the Abertis Group will carry out a 430-million-dollar (369-million-euro) investment plan to improve the current toll road system in the Ausol network, and a 250-million-dollar (215-million-euro) one in GCO, which will be financed by future revenues of the concession thanks to the extension

of the expiration date in current contracts to 2030.

These agreements reinforce Abertis' strategy of public-private partnerships that the company is promoting in order to find value-added solutions for the territories where it operates, through agreements with the public administrations – similar to those reached in Argentina – to carry out new investments in exchange for extending concessions or improving tariffs.

The Road Safety Forums go international

Abertis brings its debate events about accident prevention to six countries.



Since 2018, the Abertis Group has added Spain, France, Brazil, Argentina, Chile and Puerto Rico to its network of host countries for its International Road Safety Forums. These events seek to become places where authorities, traffic safety experts and professionals in the sector can learn about the latest developments in preventing accidents and debate how public-private collaboration can help reduce traffic accidents.

Every month of September over the past five years Arteris, the Abertis subsidiary in Brazil, has held the Arteris Safety Forum. The most recent edition, held on

11 September in São Paulo, dealt with intelligent roads and their role in sustainable mobility. More than 20 international experts took part, including Lucas di Grassi, a former Formula E and Formula 1 driver, who presented an innovative vision of electric cars.

Starting this year, Abertis has brought France into its network of host countries for its Road Safety Forums. On 5 July in Paris, Sanef, the Group's affiliate in France, held its first Road Safety Forum, an event for exchanging ideas and debating about road safety.

In Spain, the key event is Planeta Vial, which held its second edition last 9 September.

The Abertis Group has also exported these forums to Argentina (12 April) and Chile (13 April). Both of them advanced the debate from several points of view, such as raising awareness of road safety among the most vulnerable groups, as well as from the perspective of the constructive model and highway maintenance with an aim to promoting the best practices in road safety.

At the end of October the first Road Safety Forum was held in Puerto Rico.

European Mobility Week, an opportunity to promote safety

Reinforcing commitment to sustainable, safe and innovative mobility.

The Abertis Group, through its subsidiaries and the Abertis Foundation, took part in the European Mobility Week, which was held from 16 to 22 September, organising different events to promote and raise awareness about road safety. In this way the company reinforces its commitment to sustainable, safe and innovative mobility.

Disco events

During the September 14-16 weekend, the Abertis Foundation carried out El Apagón (“The Blackout”), an initiative to prevent the consumption of alcohol and drugs and to discourage other bad practices when driving at night. Several discotheques in Madrid, Barcelona and Valencia (Spain) turned off the music during the night to show a testimonial video in which a young man in prison describes his experience of driving drunk and the tragic consequences of his accident (his friend died and he was seriously injured).

In Spain, Abertis’ subsidiary, Autopistas, displayed messages in the panels installed on its motorway network to reinforce the ideas of the European Mobility Week. The company also joined the Edward Project, promoted by TISPOL (European Traffic Police Network), which aims to make roads in Europe safer.

Children’s driving track in Verona (Italy)

Also during the weekend of September 14-16, in Verona (Italy), the company’s subsidiary, A4 Holding, launched Isla Segura, an educational project to teach road safety to school children. Isla Segura replicates a real street with its traffic signs, lanes, zebra crossings and roundabouts. Children ride bicycles or skateboards, accompanied by monitors who teach them, through play, the basic rules of road safety: why it is important to use seat belts, what are the consequences of exceeding speed limits, or using a cell phone while driving, etc.

At the end of the course, the little drivers who have correctly followed the road rules will receive a “responsible driver’s” license.

Also in Brazil

As part of the 2018 National Transit Week, Arteris has carried out a series of activities on road safety in more than 136 pub-

lic schools in Brazil under the motto “Nós somos o trânsito” (We Are the Traffic).

According to a survey of 1,000 students between the ages of 12 and 17 conducted by the company, some 71% do not receive instruction about road safety. To educate them in this subject, Arteris, by means of Projecto Escola, took part in more than 850 events this month –such as games, conferences, gymkhanas, theatrical productions and hikes– to raise awareness about the role each individual plays in the safety of all.



The Abertis Chair awards the VII International Prize in Paris

→ It recognises the best academic work from among the winners of the five national editions: Spain, France, Puerto Rico, Brazil and Chile.

Last 18 October the International Network of Abertis Chairs awarded its seventh International Prize for Infrastructure Management and Road Safety, which recognises the best academic work from among all the winners of the national editions of this prize (Spain, France, Brazil, Chile and Puerto Rico). This prize comes in the three categories: doctoral thesis, master's thesis and road safety.

The award ceremony took place in the Spanish Embassy in Paris, and was attended by Fernando Cardedera, the Spanish Ambassador to France; Arnaud Quémar, General Manager of Sanef, a French subsidiary of Abertis; Simon Cohen, Director of the Abertis Chair France; Françoise Prêteux, Director of Research at the École de Ponts Paris-Tech; and Sergi Loughney, Chief Reputation Officer and Director of the Abertis Foundation.

In the Doctoral Thesis category, the Abertis International Prize went to the winner of the XV Abertis Prize Spain, Elena Mora, doctor from the Universidad de Cantabria (Spain), for her thesis *A Bayesian network approach for probabilistic safety analysis of traffic networks*.

In the Master's category, the winner was Bryan Ruiz, of the University of Puerto Rico, for his work titled *Use of driving simulator for the operational and safety evaluation of signage and pavement markings: a case study of PR-22 dynamic toll lane*.

Finally in the category of Road Safety, the winning work was the doctoral thesis *A methodology for sight distance analysis on highways, alignment coordination, and their relation to traffic safety*, by César



de Santos, doctor from the Universidad Politécnica de Madrid (UPM).

Network of Abertis Chairs

Aware of the importance of working with academia to achieve social and economic progress, Abertis fosters training, research and the transfer of knowledge between the university and the company. The International Network of Abertis Chairs is the first university think tank with the mission of promoting road safety in higher education, bringing together the efforts of academic partners, the public sector and the private sector. It is one of the pillars of Abertis' steadfast commitment to road safety via its strategic Road Safety programme.

The International Network of Abertis Chairs has been recognized this year with the award given by the Excellentia Ex Cathedra Observatory of the University of Valencia to the various initiatives promot-

ed within the framework of institutional chairs, in the category of "Good practices in the management and direction of the resources of the Chairs for the development of their activities".

The network of Abertis Academic Chairs in Spain comprises those established in Madrid (UPM-Technical University of Madrid), headed by José Manuel Vassallo, and Barcelona (UPC), under Francesc Robusté. The company also has four international academic chairs: in France (IFSTTAR, École des Ponts), headed by Simon Cohen; Puerto Rico (University of Puerto Rico), under Benjamín Colucci; Chile (Pontifical Catholic University of Chile), chaired by Juan de Dios Ortúzar; and Brazil (University of São Paulo), under the tutelage of Leidi Bernucci.

More information about the winning works on the website of the International Network of Abertis Chairs: www.catedrasabertis.com

Queen Elizabeth II inaugurates Mersey Bridge in Liverpool

→ *Abertis' subsidiary operates the management of the free-flow tolling system.*

Last July, Queen Elizabeth II officially opened the Mersey Gateway Bridge in Liverpool. Emovis, Abertis' technology and services subsidiary, has been in charge of the design, implemen-

tation and, from last October, the management of the free-flow tolling system of this infrastructure

This royal visit was also the first official engagement for the new Duchess of Sussex, Meghan Markle, without Prince Henry. The visit started with the arrival of the Royal Train at Run-corn's station, from where they traveled across the Mersey Gateway Bridge to Halton, where the official opening event of the iconic bridge took place with the unveiling of a commemorative plaque.



Photograph courtesy of Halton Borough Council

Miró and Dalí, stars of the cultural scene

→ *Abertis sponsors large exhibitions.*

Cultural patronage is one of the ways by which Abertis gets involved in society's fabric, supporting different international art exhibits by Miró, Dalí, Gaudí, Max Beckmann and the Russian Dada movement.

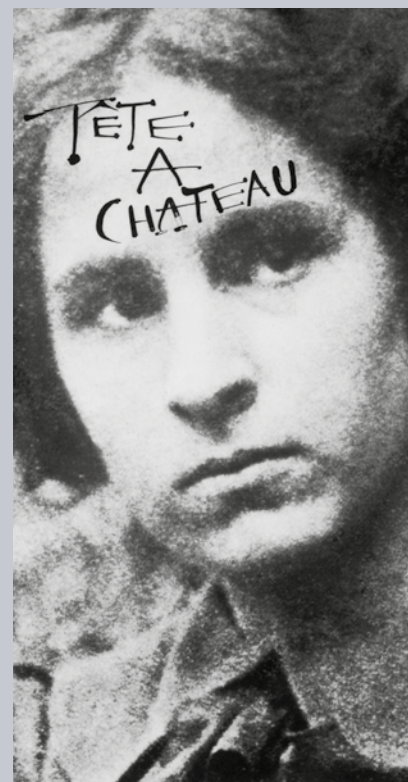
On 3 October, the Grand Palais in Paris opened a large retrospective on Miró, running until 4 February 2019, which will certainly be one of the highlights of the autumn cultural scene in France. The exhibition comprises nearly 150 works and shows the artist's technical and stylistic development.

As for the Museu Nacional d'Art de Catalunya (MNAC of Barcelona, Spain), on 14 October, it closed the show *Gala Salvador Dalí*, the first internation-

al exhibition dedicated to the artist Gala, wife and muse of the genius from Figueras. It displayed 315 paintings and offered, for the first time, a collection of letters, postcards and books, as well as dresses and personal toiletry objects of Elena Dimitrievna Diakonova, known as Gala. The show reflected the image changes of Gala portrayed in Dalí's work and also made it possible to follow the painter's development thanks to an important collection of oils and drawings.

The Reina Sofia National Museum in Madrid hosted *Russian Dada 1914-1924*, another exhibition sponsored by Abertis. It explores Russian avant-garde art through the perspective of the Anti-art canons associated with the international Dada movement.

In the coming months, Abertis will continue developing its artistic patronage policy by supporting the show on Max Beckmann, *Exile Figures* at the Thyssen-Bornemisza National Museum which opened on 25 October and, in 2019, through a large exhibition on Antonio Gaudí that will travel to Santiago de Chile.





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