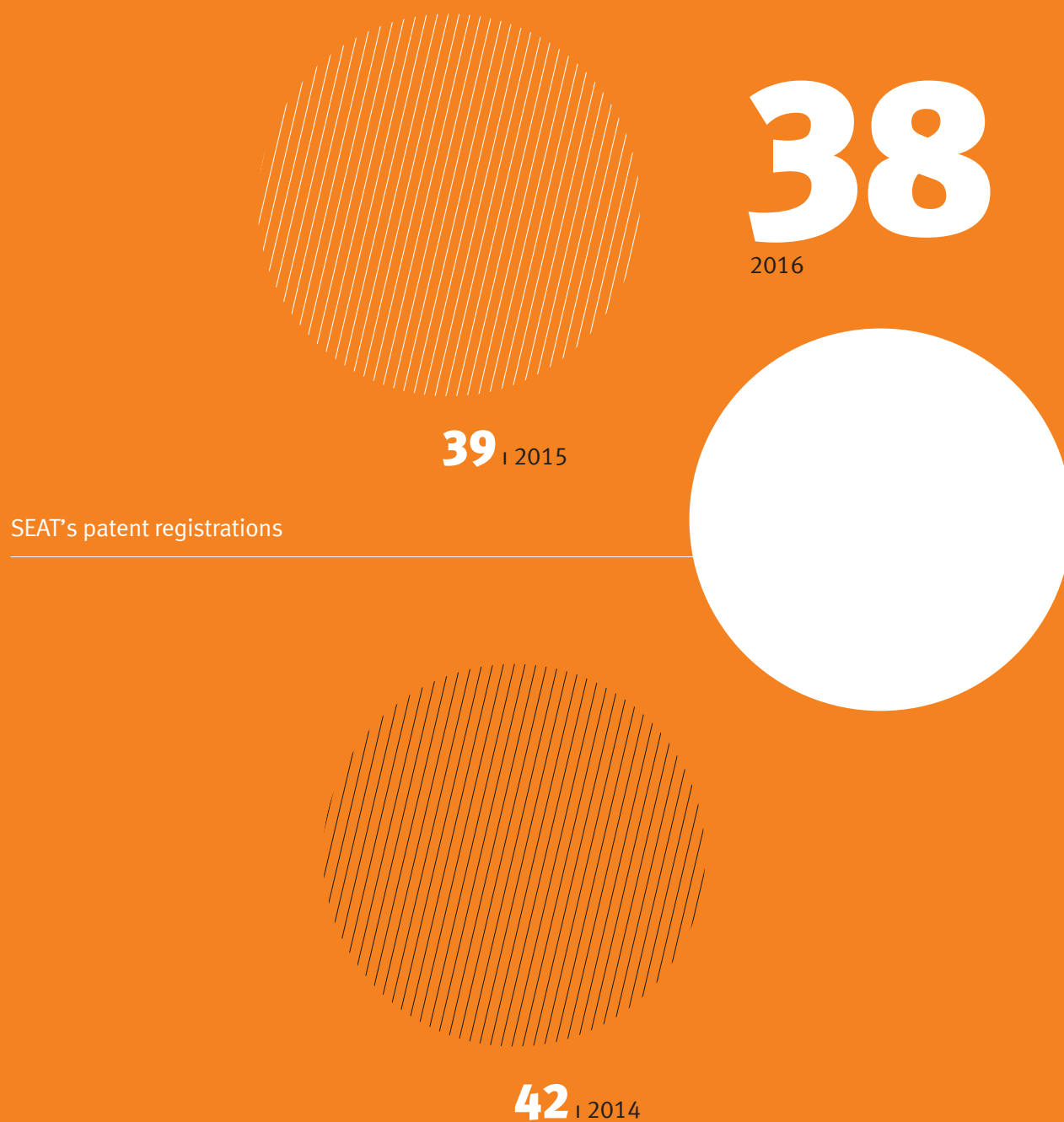


6

TECHNOLOGICAL ADVANCES

RESEARCH AND DEVELOPMENT



SEAT TECHNICAL CENTRE

After celebrating its 40th anniversary, in 2016 the SEAT Technical Centre (CTS) began a transformation process to deal with the technological challenges it will face over the next ten years. To respond to these challenges, the Technical Centre has ceased to be an independent company, becoming part of SEAT, S.A. The merger will allow for synergies and will improve the different processes for developing vehicles.

The CTS is a leading centre in R&D&I, the only one in Spain where cars are developed from start to finish. In it, some 1,000 engineers, designers and technicians work to find solutions based on electrification, digitalisation, new mobility services and the smart car. Its long history of over 40 years has made it a hub of knowledge, where the latest processes are applied to innovate in key areas such as reducing CO₂ emissions or the use of more functional and efficient designs. In doing so, the incorporation of the latest technological advances is assured and SEAT's DNA is kept alive in each and every one of the brand's vehicles.



1,400 days for a car

1,400 days, more than 1,000 sketches, 5,000 kilos of clay and 1,000 litres of paint. Those are some of the figures that sum up the design of a new model. The process lasts approximately four years and starts with a handicraft process, with a pencil and paper, until the vehicle ends up on the production line.



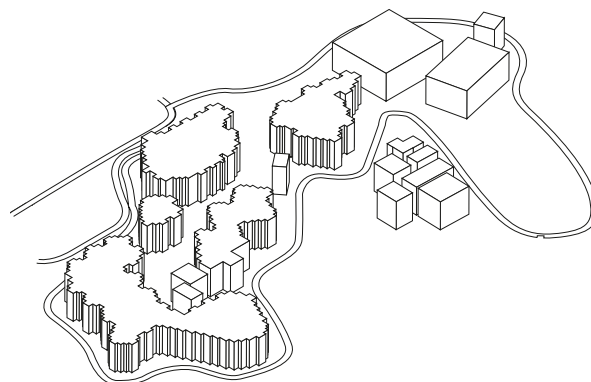
Number of designs

345



Test kms

1,300,000



Number of prototypes

82



Engineering hours

2,750,000

INNOVATION AND PRODUCT

Product

The development and launch of the Ateca model has introduced SEAT to the SUV segment, the fastest-growing segment in the market, with a vehicle loaded with technological features that is to become the third pillar of the brand, following the success of the Leon and the Ibiza.

The Ateca has a genuinely SEAT design and functional features in its interior that make it unique for its comfort and for its large boot that can be opened automatically thanks to the optional electric rear door. With regard to dynamic driving, the engineers of the Technical Centre have gone to great lengths to achieve a perfect harmony between sportiness and comfort, with a combination that is among the lightest in its segment. To strengthen its dynamic character even more, the Ateca has turbo petrol (TSI) or diesel (TDI) engines, with between 115 and 190 HP and with reduced fuel consumptions ranging from 4.2 to 5.1 litres per 100 km.

In terms of technology, the Ateca has an extensive package of driver assistance features, many of them never previously used by the brand and which make life on board easier, such as lane assist to correct unintentional movements, fatigue detection or traffic jam assist. The connectivity of the Ateca also takes on a leading role in the brand's new strategy, as it ensures that the driver can stay connected in the car with the utmost safety thanks to the 8-inch screen, the Full Link connection system and the wireless charger.

At the Paris Motor Show held in October 2016, SEAT presented the Ateca X-PERIENCE, a design exercise inspired by 4x4 vehicles which served to show the possibilities and potential of the Ateca family in the future. Aimed at the customer that wants to take their car to the extreme, the Ateca X-PERIENCE sets itself apart with a higher ground clearance, elevated suspension, off-road tyres, new bumpers and a matte olive green colour associated with nature.

SEAT's designers and engineers continue working to guarantee the success of the biggest product offensive in the brand's history. In 2017, the updated Leon will reach dealerships, the fifth generation of the Ibiza will be presented, and the new Arona will be introduced.



ONCE UPON A TIME... A NEW CAR

The pupils of the "Minions" class (7 years of age) at the Lasalle Gràcia school in Barcelona are paid a visit by an engineer and designer from SEAT to answer their questions about the process of creating a car.

THE ATECA HAS A GENUINELY SEAT DESIGN AND FUNCTIONAL FEATURES IN ITS INTERIOR THAT MAKE IT UNIQUE



Five Euro NCAP stars for the SEAT Ateca

The Ateca, the brand's first SUV, has shown its high level of safety by earning five stars, the highest score, in the Euro NCAP tests performed shortly before its arrival across the commercial network. The new model achieved an excellent result in each of the areas that make up the tests, particularly in the protection of adult occupants and in child protection, as well as in the protection of pedestrians and driver assistance systems. The effectiveness of the advanced safety systems that the Ateca includes as standard explains the success achieved in these tests.



CAN YOU DRIVE A CAR BLIND?

The Ateca's 360° camera allows the driver to have full vision thanks to the four cameras it has installed in it. A German couple takes on the challenge in Barcelona of driving a car with the windscreen and windows completely covered.



The SEAT Ateca offers multiple innovations

The Ateca is equipped with the latest innovations in driving assistance systems: the Kessy system, which allows you to unlock and start the car even with the key in your pocket or bag; an 8-inch screen and Full Link connection systems, which ensure connectivity inside the car with the utmost safety; Wireless Charger, which allows the driver to wirelessly charge electronic devices; Traffic Jam Assist, which guides the vehicle along the lane in dense traffic below 60 km/h; Emergency Assist, which emits visual and acoustic alarms to the driver or brakes when it detects that the driver is inactive for a certain amount of time; and Top View, which offers four cameras that cover the view of the whole area surrounding the car.

Technological advances

The Technical Centre is the heart of SEAT's innovation, the place where the brand conceives, designs and develops its cars to satisfy its customers' needs. It is where the engineers develop the most advanced technology and designs, as well as putting all the innovations to the test to guarantee that the vehicles meet the required quality standards. Throughout this process, virtually all parts of each model of the brand are created and even assembled. This way, the engineers can study every detail and ensure that everything is ready before adding innovations.

During 2016, SEAT has made a number of technological advances a reality in its cars. In the Ateca, the company has introduced a new generation of automatic transmissions which reduce the CO₂ emissions and help to reduce the decay of the lubricant oil by reducing internal friction. This allows the frequency with which the gearbox oil requires replacement to be increased to 100,000 km, compared to the current 60,000 km. Furthermore, the new transmission significantly improves driving through the addition of a seventh gear. Internal improvements have also been made to all the diesel engines of the Ateca to achieve a reduction of CO₂. Among the most significant improvements are the development of the disconnectable alternator, the optimisation of the engine's temperature control, the reduction of the flow of circulating oil, together with the addition of an improved low-friction oil and a reduction in the backpressure of exhaust gases.

The technological advances go beyond the purely mechanical aspects. The designers and engineers of the Technical Centre are trying to achieve the perfect balance between a beautiful design and a fully reliable bodywork that offers the best protection to pedestrians and occupants of the vehicle. With the launch of the Ateca and of the Mii by Cosmopolitan during 2016, SEAT has consolidated its design language based on concepts such as dynamism, strength, safety and functionality, without forgetting everyone's more human need: to be connected.



25,000 KM TO THE LIMIT

All SEAT models are tested in extreme conditions to check their reliability. In the case of the Ateca: 50 engineers, 80 tests, 25,000 kilometres and three weeks of work.

Connectivity

One of SEAT's priorities is to become a leading brand in the sphere of the new mobility services and smart cars. As a continuation of this strategy begun in 2015 with the first apps for use while driving produced in the Technical Centre, in 2016 SEAT has been the first car manufacturer to launch an app that is compatible with Apple CarPlay™ in Spain's Apple Store, the SEAT DriveApp. This application allows for a great connectivity experience in a simple manner, thanks to Apple's CarPlay™ technology which offers exclusive functions for users of SEAT Full Link, such as consulting the state of the vehicle, carrying out the recommended actions in the maintenance plans, viewing SEAT's service network with just a click or finding out about the offers available in the network.

During 2016, SEAT presented its future concepts around the smart car at leading events such as the Mobile World Congress and the Smart City Expo World Congress. One of the main projects is "Digital Access", a function that allows the user to access the car and transfer rights of use using their smartphone. This technology

will improve not only private customers' experience, but it will facilitate the consolidation of new shared mobility services.

Furthermore, the experience of parking will be revolutionised with three new concepts: the Ateca Smart City Car, a prototype that recognises parking spaces while you drive; and the Parkfinder and Mobile Payment applications, which allow the user to search for parking spaces by incorporating real-time data and to pay for them from the comfort of their car. In this field, cooperation between the city and smart vehicles is essential and this idea became the central theme of the SEAT stand at the Smart City Expo World Congress. This collaboration is materialised both in the cooperative parking map of Barcelona, from which the Parkfinder application takes its data (combining data from sensors around the city with data gathered by vehicles on the road), and in future mobility services based on on-demand shared transport systems.

A new driving and connectivity experience

The 11th edition of the Mobile World Congress (MWC) held in Barcelona was the perfect opportunity to showcase SEAT's new Connected Car, which includes various technological innovations.



FINGER PRINT

Security is important in connectivity. To access the new services and to make payments, the drivers must identify themselves with their finger print.



SEARCH FOR PARKING

Whenever we want to park, the new application will search for free parking spaces in the area, it will allow the driver to reserve a space and it will guide them to the car park using the GPS navigator.

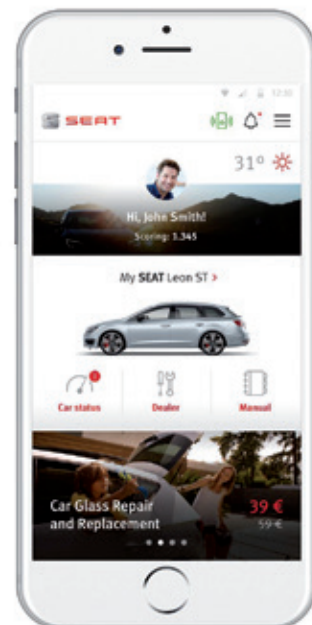


MAKE PAYMENTS WITHOUT LEAVING THE CAR

Upon finishing their stay, the driver can pay directly from the application without leaving the car. The barrier will open automatically.

DIGITAL KEY SHARING

This is an advanced concept of the Digital Key service to lock and unlock doors using a smartphone. Now it is also possible to authorise another person to use the car.



MY SEAT

During the Mobile World Congress, SEAT presented some technological innovations for the first time, such as the new generation of the customer app MY SEAT.

Smart city: a new ecosystem

In 2050 around 70% of the population will live in major urban concentrations. The goal will be to integrate the car into the new reality. This is how the mobility of the future will be.

ICITY PLATFORM

Mobility management systems and city data platforms will guide and provide vehicles with the information needed for efficient mobility.



SMART NAVIGATION

The real-time, high-definition navigator will provide information on free parking places at the nearest car parks and others further away. It will also indicate the best route to your destination. The route will be calculated considering the other vehicles on the road.



SMARTPHONE AS A DIGITAL KEY

Your car will recognise you by your fingerprint. The car's hard disk will have stored the driver profiles and will adapt to each one's preferences. The digital key will also provide access to smart parking and car sharing services, among others.

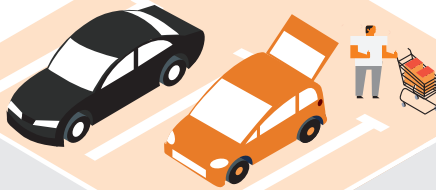
UNIVERSAL TRACKING (GEOFENCING)

Immediate location of the car within the urban road network and delimitation of its area of use (Geofencing). Service localisation: hospitals, markets, train stations and bus stops. Creation of updated interactive maps in near real-time.



LAST-MILE DEVICES

People who reach the city from the outskirts and park their vehicles in smart parking facilities will be able to continue their journey to the centre in a small vehicle that they can park when they reach their destination.



SERVICES IN SMART PARKING FACILITIES

Smart parking facilities are becoming a place you can use to access services. A digital key lets a vehicle owner give service providers access to the car even when he or she isn't there. For example, to have your car checked while it is parked or for a supermarket employee to leave your shopping in the boot.

AIRPORT



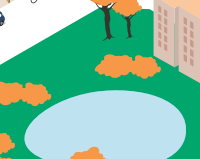
DRIVERLESS CARS

Occupants are "freed up" to do other things. The vehicle can drive without passengers and pick up people and goods.



SMARTER AND MORE SUSTAINABLE CARS

Used in a more rational fashion and powered by alternative energies (electric, CNG, hybrid vehicles...)



BREAKDOWN

ACCIDENT

CAR2CAR CONNECTIVITY

Cars that are close to each other will be inter-connected when they enter a particular city area and exchange useful information which is automatically and instantly updated. The car will use this information to "select" the best possible route.



CAR SHARING TRIPS

The important thing is to have a car available to you when you need it, not to own it. New business models will be created to manage these services.



Patents

SEAT is one of the most active companies in Spain in the sphere of innovation and, therefore, protecting its industrial property is essential.

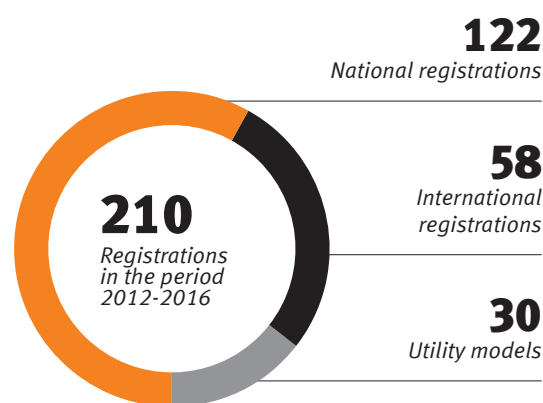
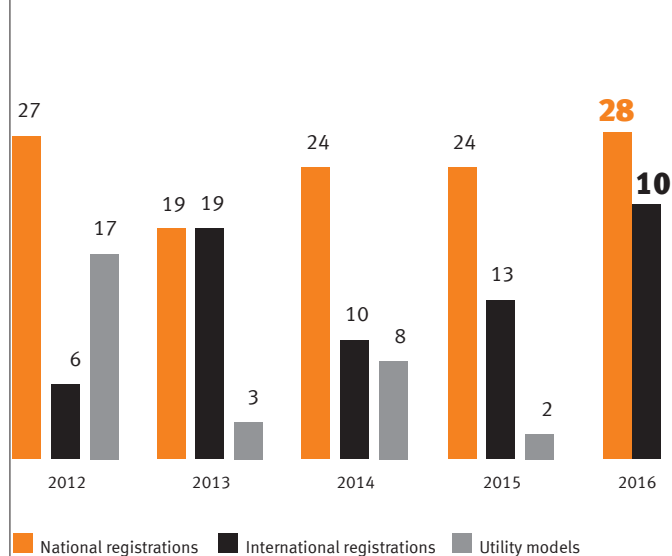
In 2016, the company completed a total of 38 registrations: 28 national patents (NR) and 10 international patents (IR). In the last five years, the company has applied for a total of 210 registrations, between utility models and patents. SEAT's current portfolio of registrations in force amounts to 301 registrations.

In order to recognise the work of the most creative and innovative people in the company, every year the Technical Centre organises the Inventors Awards. Through this initiative, SEAT sets out to recognise the importance of its team of people and awards all the inventors whose proposals are protected. In addition, three special prizes are awarded, which in the latest edition went to:

- / Best international registration: ignition switch with intermittency.
- / Best national registration: wheel angle regulator system.
- / Best innovation of the year: Parkfinder application (technological innovation) and Programmatic Buying Unit (marketing innovation).



SEAT's patent registrations



TRAINING AND AGREEMENTS

For SEAT, collaboration with universities is important for two reasons. On the one hand, it ensures future talent for the company and, on the other hand, it offers opportunities to investigate topics which in a few years are going to revolutionise the world of mobility.

In the sphere of university training, the company continues to support the CARMAT and ELTICA postgraduate courses. Through this training, which is unique in Spain, specific knowledge of car electronics, bodywork and materials has been transmitted to more than 220 students that have taken part in its various editions. Furthermore, the company maintains its collaboration with the SEAT/UPC chair through various research projects that are carried out jointly.

Furthermore, SEAT sponsored two Spanish teams that took part in the Formula Student - the UPC team ecoRacing from the ESEIAAT (UPC Terrassa) and the UPC Motorsport team from the ETSEIB (UPC Barcelona). Both managed to complete an exceptional season in which they demonstrated their ability in terms of engineering and innovation, winning at some of the most prestigious racing tracks on the tour such as Silverstone, Hockenheim and Barcelona-Catalunya.

2016 was also the starting gun for the CARNET platform (Cooperative Automotive Research Network). The collaboration between SEAT, the Polytechnic University of Catalonia (Universitat Politècnica de Catalunya, or UPC) and Volkswagen Group Research has brought to Barcelona the first major investigation and innovation hub in the field of cars and urban mobility of the future. The objective of the platform is to lead the creation of new technologies for mobility and to transform metropolitan areas into better spaces for living in. This initiative, which includes Barcelona as a focal point for the study, represents a very important project for the digital transformation plan that the company is currently immersed in.

THE OBJECTIVE OF THE CARNET PLATFORM IS TO LEAD THE CREATION OF NEW TECHNOLOGIES FOR MOBILITY AND TO TRANSFORM METROPOLITAN AREAS INTO BETTER SPACES FOR LIVING IN

CARNET platform (Cooperative Automotive Research Network)

55
Projects linked to future mobility



18
Companies and institutions that are members of the innovation hub



88
Teachers and students working on the projects



Award for the best training initiative

SEAT, Volkswagen Group Research and the Polytechnic University of Catalonia (Universidad Politècnica de Catalunya, or UPC) were recognised by the newspaper *ElEconomista* for leading the Best Training Initiative. The prize was awarded to the Creative Lab project, in which students from the UPC take part, together with professionals from the Group, in generating creative ideas and solutions for mobility. With this project, concepts have been developed such as a function of the vehicle's navigator that helps drivers to find parking, reducing journey times as well as saving money on fuel and CO₂ emissions.

MOTOR SPORTS COMPETITION



SEAT reaffirmed its long history in motor sports competition with a new edition of the SEAT Leon Eurocup. In its third season, this single-brand championship had an average of 17 drivers per race, making it once again a championship that offers maximum sporting action to professional teams. Once again, seven Grand Prix were vied for on seven highly prestigious European circuits, three of which are Formula 1 circuits. The star of this championship was the SEAT Leon Cup Racer, a spectacular racing car with an engine capacity of 330 HP and a wide range of technological features.

The SEAT Leon Cup Racer was improved to dispute the 2016 edition and all customers were also offered the possibility of an upgrade. The improvements introduced were made in aerodynamics, brakes, engine cooling, gearbox and weight distribution. The constant evolution of the SEAT Leon Cup Racer has made it a highly sought after car by teams and drivers from around the world, even reaching markets such as Thailand, where the brand has no commercial presence. Since its launch, a total of 190 vehicles (80 of them in 2016) have been delivered to 110 teams from 23 countries, which actively participate with the SEAT brand in national and international championships.

The SEAT Leon Cup Racer also competes in the TCR International Series (Touring Car Championship), in which it made its debut in 2015 and a team of SEAT customers managed to lift the drivers' trophy at the hand of the Swiss Stefano Comini. During 2016, this championship was once again held in Europe, Asia and the Middle East, with a total of 22 races held over eleven weekends and three of the circuits being included on the Formula 1 schedule: Bahrain, Singapore and Malaysia.

At the same time as the TCR International Series, other national TCR series have appeared in which SEAT has had a significant representation in the countries where these competitions have taken place: TCR Asia, TCR Benelux, TCR Germany, TCR Italy, TCR Portugal, TCR Russia, TCR Spain, TCR Thailand, TCES, the 24 Hours Series and the Nürburgring 24 Hour Race.

SEAT Sport also continues its policy of supporting private customers, offering them technical assistance in different events and championships such as the Barcelona 24 Hour Race, the Spanish Endurance Championship (CER), the European Touring



Car Championship (ETCC), the Ibiza Cup Italy and various national championships.

In the Barcelona 24 Hour Race, SEAT's ambassador Laia Sanz, together with driver Francesc Gutiérrez, repeated for the third consecutive year the challenge of finishing the competition. The former FC Barcelona football player Eric Abidal also took part in this edition as a SEAT driver.

SEAT Sport also takes part in projects of the Volkswagen Group and provides technical support to Audi in the German Touring Car Championship (DTM) and in the development and manufacturing of vehicles for Audi Motorsport and for Volkswagen Motorsport. The company develops the Group's models with the MQB platform of the SEAT Leon for race track competitions.

Timeline of the SEAT Leon Eurocup 2016

Date	Circuit
23-24 April	Estoril PORTUGAL
14-15 May	Silverstone UNITED KINGDOM
4-5 June	Paul Ricard FRANCE
16-17 July	Mugello ITALY
10-11 September	Red Bull Ring AUSTRIA
17-18 September	Nürburgring GERMANY
5-6 November	Barcelona-Catalunya SPAIN



THE SEAT LEON CUP RACER IS A SPECTACULAR RACING CAR WITH AN ENGINE CAPACITY OF 330 HP AND A WIDE RANGE OF TECHNOLOGICAL FEATURES



FROM THE PRAM TO THE RACING CAR

Mathilda provides the name for the racing team led by her father, the Mathilda Racing Team. Since she was a baby her father has been taking her to the races and now, at just seven years of age, she continues to go without missing a single race.



SEAT sport introduces its new website

The website of SEAT Sport was renovated to adapt its contents and viewing method to users' needs. The new page is responsive, which allows for optimal browsing regardless of the device used to visit it: www.seat-sport.com