

BMW at the 81st Geneva Motor Show 2011. Table of contents.



1. BMW at the 81st Geneva Motor Show 2011.	
(Summary)	2
2. An overview of the highlights.	10
3. BMW at the 81st Geneva Motor Show 2011.	
(Full version)	
3.1 The future of intelligent networking: BMW Vision ConnectedDrive.	13
3.2 Consistent advancement in a new diversity: State-of-the-art technologies and concepts from BMW EfficientDynamics.	39
3.3 Less emissions, more variability: The BMW 320d EfficientDynamics Edition Touring.	43
3.4 The next step towards emission-free mobility: The BMW ActiveE.	46
3.5 A new dimension in driving pleasure and efficiency: The new BMW X1 xDrive28i with BMW TwinPower Turbo.	60
3.6 Getting ahead with intelligent four-wheel drive: BMW xDrive on the road to success - now featured in 47 BMW models.	68
3.7 Out of a passion for supreme performance and exclusivity: Current innovations from the BMW M GmbH product range.	73
3.8 The best ideas for even more driving pleasure: Original BMW Accessories.	77

1. BMW at the 81st Geneva Motor Show 2011. (Summary)



With its outstanding technical expertise and consistent development strategy, BMW opens the door to solutions, both sustainable and attractive, which address the question of individual mobility in the future. The new models and concept cars on display at the 2011 International Motor Show in Geneva highlight the innovative power of the world's most successful premium automobile manufacturer. A multitude of unique new developments in the fields of drive systems and intelligent networking of the driver, the vehicle and the environment will be presented by BMW to the public at the Geneva Motor Show from 3rd to 13th of March 2011; all of these contributing to a steady, continuous increase in both vehicle efficiency and driving pleasure.

The leading position in the automobile world occupied by BMW in the development of innovative driver assistance systems and mobility services will be further strengthened at the 2011 Motor Show by the world premiere of an extraordinary concept vehicle. The BMW Vision ConnectedDrive study demonstrates current and future methods of mobile networking in a particularly focused way. The design and technology of this spectacular roadster are aimed at making the vehicle an integral part of a networked world. Comfort, safety and the infotainment experience in the vehicle can be precisely optimised by the innovative functionality, individually tailored to suit the requirements of both the driver and passenger. New technologies and design concepts are employed to add even more facets to the unmistakable BMW driving pleasure.

BMW presents new aspects of its distinctive driving pleasure to the motoring public with the development of concepts for electromobility. In the framework of BMW EfficientDynamics, the purely electric drive has adopted a key role on the road to CO₂-free mobility. For the first time, electromobility styled by BMW is on the verge of becoming available to everyone for day-to-day use. The 2011 International Motor Show is the venue for the world premiere of the BMW ActiveE, an emission-free vehicle that offers the sporty feel, so typical of the brand, to up to four people.

BMW has also extended its lead in the field of conventionally-powered production vehicles, with the introduction of efficiency-raising technologies. At the 2011 Geneva Motor Show, the BMW 320d EfficientDynamics Touring Edition will be presented to the public for the first time. Its four-cylinder diesel engine develops a maximum output of 120 kW/163 bhp and yet consumes only an average of 4.3 litres per 100 kilometres in the EU test cycle (CO₂: 114 g/km). In the mid-range premium segment, the BMW 320d EfficientDynamics Touring Edition, together with the similarly configured sedan, provide by far the best combination of driving pleasure and economy.

Furthermore, the Geneva Motor Show is also the setting for the world premiere of the new BMW X1 xDrive28i and thus for a new generation of 2.0-litre petrol engines. For the first time in a four-cylinder engine, the drive unit is fitted with BMW TwinPower Turbo Technology with a turbocharging system based upon the Twin Scroll principle together with High Precision Injection and the VALVETRONIC fully-variable valve control system. The result convincingly meets the objectives of BMW EfficientDynamics - more driving pleasure at significantly lower consumption and CO₂ emissions.

Captivating innovation - BMW Vision ConnectedDrive.

Pioneering technology heightens driving pleasure.

BMW Vision ConnectedDrive makes its case in a most persuasive way, presenting immediately-mesmerising, intelligent solutions. The character of this concept study, presented as a two-seater roadster, is one of a mobile component in a networked world, both in design as well as by virtue of extensive technological innovations. BMW demonstrates with this vehicle the unique potential that can be realised by both the current and future developments in BMW ConnectedDrive, optimising comfort, safety and the enjoyment of infotainment in the vehicle.

The boundless opportunities to attain even more driving pleasure by means of intelligent networks is demonstrated most impressively at the Geneva Motor Show by the world premiere of BMW Vision ConnectedDrive, by the design of the bodywork and interior of the concept vehicle, an inspiring light installation, a new display and operating concept and a multimedia presentation at the show. The design embodies the bond between the driver and the vehicle and the dialogue between the driver and the passenger as well as the interaction of

the occupants of the car with the environment. The functional areas of BMW ConnectedDrive are symbolised on three levels - comfort, safety and infotainment. The elementary exchange of data and information for all three functional areas is visualised by an intricately complex light installation and presentation at the exhibition.

In addition to the dynamic charisma generated in typical BMW style by a long bonnet blending seamlessly with the windscreen, the long wheelbase and the seating positions set well back, the design of the concept vehicle visualises the fusion of exterior, interior and environment, made possible only by BMW ConnectedDrive. Surfaces, strongly expressive and powerfully taut, are enhanced by distinctive flowing lines. The layering principle, which requires that individual components take on a number of tasks, has been implemented both in the interior and the exterior. Sensors integrated into the headlights and the rear lights assist in monitoring the traffic situation and the environment. Antennas instead of wing mirrors transmit information to the outside world and capture navigation data.

An enhanced Head-Up Display is one of the innovations in the field of display and operating concepts of the BMW Vision ConnectedDrive family. It delivers a three-dimensional display of information and icons which provide an optical fusion of the actual view of the road ahead with virtual content. For example, this augmented reality application projects information about the route precisely onto the location of a possible turn-off - in relation to the actual field of view. Information is displayed either in the foreground or in the background, depending upon its relevance and the current traffic situation. In addition, the concept vehicle is equipped with a freely programmable instrument cluster; its display complements the projections generated by the Head-Up Display. The range and breadth of its functionality exceeds by far the display capabilities of classic cockpit instruments. By means of a display, which also presents information in three dimensions, individual pieces of information can be optically emphasized to a greater or lesser degree depending upon the driving situation, in order to gain the appropriate amount of attention.

Via the Passenger Information Display, the passenger in a BMW Vision ConnectedDrive vehicle can also take advantage of additional functionalities provided by intelligent networking. As a co-pilot he can evaluate information or address details for the navigation system received online and

forward them to the driver's instrument panel if necessary. Thus the interaction between the driver and the passenger and networking with the environment reach new levels. The Emotional Browser makes an even more varied and individually-tailored choice of information possible. During the journey, this system captures and filters additional information about the environment through which the vehicle is currently travelling, in terms of people, mood or location. This personal configuration can be set at the start of the journey, but can also be adjusted on the road to be more or less detailed, to suit individual requirements.

Ready to go:

the BMW ActiveE, the first BMW with a purely electric drive.

Zero emissions, four seats and the sporty feel typical of the brand. These are the most striking features of the BMW ActiveE whose world premiere is one of the highlights of the 2011 Geneva Motor Show. The BMW Group presents the next major milestone on the road to sustainable, CO₂-free mobility. In addition to the MINI E, the BMW ActiveE is the second electric test vehicle created by the BMW Group. This car accelerates from zero to 100 km/h in 9 seconds and delivers an output of 125 kW/170 bhp and a maximum torque of 250 Nm; it enjoys the dynamism and agility of a BMW, even from a standing start - something that is characteristic of electric vehicles. In everyday traffic situations, the newly developed lithium-ion energy storage unit ensures a range of around 160 km (100 miles).

Just like the MINI E, the BMW ActiveE is a conversion car, an electric vehicle based upon the shell of a vehicle with an internal combustion engine. And yet with the BMW ActiveE, all of the electric drive components such as the energy storage unit, the electric motor and the power electronics have been integrated into a vehicle body for which these things were never intended - and this has been achieved without any loss of space or comfort in the interior. The BMW ActiveE is the first electric vehicle produced by the BMW Group that provides four fully-fledged seats and a luggage compartment with a volume of 200 litres. The job done by the BMW Development Engineers is all the more impressive when you consider that this is "just" a test vehicle. The BMW ActiveE integrates pre-series versions of the drive and energy storage unit from the future Megacity Vehicle, some with identical, some with similar geometry, into a vehicle of a completely different concept, in order to road-test

these components for the first time. Apart from a small air scoop on the bonnet and a smaller luggage compartment, there are almost no differences in the exterior or interior from the production version of the BMW 1 Series Coupe.

BMW EfficientDynamics - new models, new engines, new ideas.

Within the framework of BMW EfficientDynamics, conventional internal combustion engines are also undergoing continuous improvement with regard to fuel consumption and emissions, in parallel with the further development of electromobility and the BMW ActiveHybrid Technology. With the current range of models, BMW is extending its present lead in this field even further with efficiency-optimised engines and transmissions in addition to numerous other efficiency-enhancing measures. Another example of advances made with the aid of this technology, which has great future potential, can be seen in the BMW 320d EfficientDynamics Touring Edition, which will be presented for the first time at the 2011 Geneva Motor Show. Powered by a 120 kW/163 bhp four-cylinder diesel engine, this model delivers by far and away the most economical relationship between driving pleasure and fuel consumption in its class. The BMW 320d EfficientDynamics Touring Edition accelerates in 8.3 seconds from zero to 100 km/h and has an average fuel consumption of 4.3 litres per 100 km in the EU test cycle with CO₂ emissions of 114 grams per kilometre.

The integration of a centrifugal force pendulum into the dual-mass flywheel in the transmission is one of the efficiency-enhancing innovations from which the BMW 320d EfficientDynamics Touring Edition benefits. It ensures particularly quiet, vibration-free running while driving at very low engine speeds. In combination with a longer final drive ratio, a significant reduction in engine speeds has been achieved across all everyday road speed ranges. Furthermore, in the case of the BMW 320d EfficientDynamics Touring Edition, Brake Energy Regeneration, the Auto Start-Stop function, the Gear Shift Indicator, the Electric Power Steering, demand-controlled ancillary components, Air Vent Control, aerodynamically optimised alloy wheels and low rolling resistance tyres all contribute towards low fuel consumption and reduced CO₂ emissions.

An important instrument used to increase the efficiency of petrol engines is BMW's TwinPower Turbo Technology, which is now available for four-cylinder engines. In the new generation of 2.0-litre engines, the combination of turbocharging according to the Twin Scroll principle, the direct petrol injection technology High Precision Injection and BMW's patented VALVETRONIC fully-variable valve control system delivers a significant performance bonus while simultaneously effecting a notably increased degree of efficiency.

The first model to be fitted with this new drive unit is the new BMW X1 xDrive28i, presented in Geneva. Its 2.0-litre engine with BMW TwinPower Turbo Technology develops a maximum output of 180 kW/245 bhp and a maximum torque of 350 Nm available at only 1,250 rpm. With this under the bonnet, the BMW X model accelerates from zero to 100 km/h in only 6.1 seconds. Its average fuel consumption in the EU test cycle is 7.9 litres per 100 kilometres with CO₂ emissions of 183 grams per kilometre. Compared with the previous model, the BMW X1 xDrive28i has a significantly improved spurt capability while using 16% less fuel.

The introduction of additional innovations from BMW EfficientDynamics to models in other BMW series has also led to even lower levels of fuel consumption and emissions. For example, in the spring of 2011 the number of BMW models fitted with Auto Start-Stop as standard equipment - also in combination with an automatic transmission - will increase yet again. In addition to the new BMW X3 xDrive30d and the new BMW 640i Convertible, the latest models in the BMW 5 Series fitted with the BMW xDrive intelligent four-wheel drive system - the BMW 535i xDrive Sedan, the BMW 530d xDrive Sedan and the BMW 530d xDrive Touring - are all equipped with this technology.

The Air Curtain, a further innovation from BMW EfficientDynamics to improve the aerodynamics, will be presented in the spring of 2011. The new BMW 1 Series Coupe, the new BMW 1 Series Convertible and the BMW 1 Series M Coupe are all fitted with newly-designed front aprons that reduce air resistance. By carefully channelling the air, the aerodynamically undesirable turbulence that occurs in the vicinity of the wheel arches is significantly reduced.

The spectrum of innovations that contribute to a continuous decrease in both fuel consumption and emissions also encompasses the development of BMW ConnectedDrive. With the development of cutting-edge driver assistance systems, BMW is making an additional contribution to a particularly potent combination of driving pleasure and efficiency.

BMW xDrive on the road to success - 47 models with intelligent four-wheel drive.

The popularity of the BMW xDrive intelligent four-wheel drive system is increasing daily. By consistently driving forward the development of the technology and equipping additional models with the system, BMW is also injecting fresh impetus to this development in 2011. The latest version of the permanent, electronically controlled four-wheel drive system not only optimises traction and driving stability even better than ever on slippery surfaces but now also enhances driving dynamics in bends. At the 2011 Geneva Motor Show, BMW presents four additional models that are equipped with xDrive.

The triumph of BMW's intelligent four-wheel drive system is closely related to the phenomenal success enjoyed by the BMW X models throughout the world. Furthermore, the system has demonstrated its unique qualities to good effect in a growing number of models belonging to other series. By virtue of its incredibly quick and precise reaction to every change in the traffic situation, xDrive guarantees superior traction, maximum safety, the very best handling and an optimal, smooth performance characteristic in all weather and road conditions. The selection of four-wheel drive vehicles available in BMW's range of automobiles will be expanded yet again in the spring of 2011. The latest additions are the BMW X3 xDrive30d as well as three further four-wheel drive models from the BMW 5 Series. BMW now offers 47 models that benefit from the variable distribution of drive torque between the front and rear wheels provided by xDrive. This adds even more to the driving pleasure for which the brand is famed.

New perspectives on high performance and individuality - the current product range offered by BMW M GmbH and Original BMW Accessories.

The BMW M GmbH presentation at the 2011 Geneva Motor Show includes a number of attractive new additions to its product range. In addition to the range of models, recently complemented by the BMW 1 Series M Sedan, the M Sport package for the BMW X1 as well as products developed by BMW Individual for the new BMW 6 Series Convertible are on show. With these model-specific options, BMW M GmbH addresses the drivers' desires to experience high performance in everyday driving situations and also to express their own personal style with particularly exclusive personalisation options in an even greater number of vehicle segments.

An even more intense, sport-oriented driving experience is at the centre of the innovations in the Original BMW Accessories range presented in Geneva. The BMW Performance product line now includes additional retrofit options for the BMW 1 Series and the BMW 3 Series, as well as for the BMW X5 and BMW X6. The highlights include the new BMW Performance sports steering wheel and the BMW Performance Power Kit for the BMW 120d and BMW 320d. For the new BMW 520d, an option to boost power and torque is now available. What is more, the range of BMW Performance sport silencers has been expanded to include model-specific versions for the four-cylinder diesel engines fitted to the BMW 1 Series and BMW 3 Series, as well as for the BMW X5 xDrive35i and BMW X6 xDrive35i. Furthermore, the complete range of M Performance components for the BMW M3, complemented by many new additions, can be viewed at the Geneva Motor Show.

2. An overview of the highlights.



- **World premiere: the BMW Vision ConnectedDrive.**

In revealing the BMW Vision ConnectedDrive concept study, BMW gives the public a glimpse into the future of intelligent networking between driver, vehicle and the environment at the 2011 International Geneva Motor Show. Expressive design and innovative technology demonstrate the vision of BMW ConnectedDrive and the potential to encompass an optimal degree of comfort, safety and infotainment within the automobile by the targeted exchange of information. Speaking in the unmistakable BMW language of form and function, this conceptual two-seater roadster embodies a single-minded concentration on driving pleasure; captivating light installations symbolise the information flows that are at the heart of the innovative BMW ConnectedDrive features. In the BMW Vision ConnectedDrive, pioneering driver assistance systems, a newly designed display and operating concept as well as innovative technical solutions for connecting to the world of infotainment provide a glimpse of the even-more-intense driving experience of the future enabled by intelligent networking.

- **World premiere:
the BMW 320d EfficientDynamics Touring Edition.**

Never before have driving pleasure and efficiency been so closely and single-mindedly intertwined as in the BMW 320d EfficientDynamics Edition. After the successful introduction of the sedan, the BMW 320d EfficientDynamics Touring Edition will be presented at the 2011 Geneva Motor Show. Powered by a 120 kW/163 bhp diesel engine, this automobile combines the sportiness expected of a BMW with an average fuel consumption in the EU test cycle of 4.3 litres per 100 kilometres and CO₂ emissions of 114 grams per kilometre. Furthermore, in addition to the comfort of a mid-range premium automobile, the BMW 320d EfficientDynamics Touring Edition also offers a luggage compartment that can be expanded to a generous 1,385 litres.

- **World premiere: the BMW ActiveE.**

BMW has already taken the next step towards CO₂-free mobility. In presenting the BMW ActiveE, the premium automobile manufacturer underscores its single-minded development work done in the field of electromobility within the framework of project i. The knowledge and insights gained during field trials of the BMW ActiveE are fed back into the further development of the Megacity Vehicle, an automobile announced by the BMW Group, which is due to go into series production in 2013. The BMW ActiveE is powered by an electric motor developing 125 kW/170 bhp. The intelligent arrangement of the drive components and energy storage systems within the vehicle has paved the way for typical BMW driving dynamics and extended functionality. The vehicle, based upon the BMW 1 Series Coupe, has four fully-fledged seats, a luggage compartment with a capacity of around 200 litres, rear-wheel drive and a range of about 160 kilometres in everyday driving conditions.

- **European premiere: the New BMW X1 xDrive28i with BMW TwinPower Turbo.**

The European premiere of the new BMW X1 xDrive28i at the 2011 International Geneva Motor Show also marks the birth of a new generation of engines. The newly developed 2.0-litre engine under the bonnet of the BMW X develops 180 kW/245 bhp and compared to the previous model, delivers not only a much sportier performance, but also uses considerably less fuel. This dual improvement has been made possible by BMW's TwinPower Turbo Technology. For the first time, turbocharging according to the Twin Scroll principle, direct petrol injection and the VALVETRONIC variable valve control system have been combined in a four-cylinder engine. As a result, the new BMW X1 xDrive28 accelerates in only 6.1 seconds from zero to 100 km/h and has an average fuel consumption of 7.9 litres per 100 kilometres in the EU test cycle.

- **Innovation: BMW EfficientDynamics with new production-ready technologies and concepts with great future potential.**

In 2011, BMW EfficientDynamics once again set new standards by continually reducing fuel consumption and emissions. With additional innovations and the deployment of efficiency-enhancing technology in

more and more BMW models, the relationship between driving pleasure and fuel consumption has been optimised yet again. At the 2011 International Geneva Motor Show, BMW presents the Air Curtain, an aerodynamic improvement for the new BMW 1 Series Coupe and the new BMW 1 Series Convertible in addition to the Auto Start-Stop system - also in combination with an automatic transmission - for the new BMW 640i Convertible and the new BMW X3 and the new BMW 5 Series models with BMW xDrive. The long-term outlook on further increases in efficiency is marked by the refinement of BMW ActiveHybrid Technology and electromobility, as well as by the new BMW ConnectedDrive functions which support fuel economy on the road.

- **A major attraction:**

- **BMW xDrive - already available in 47 BMW models.**

- The BMW xDrive intelligent four-wheel drive system guarantees maximum driving pleasure in any kind of terrain. The permanent, electronically controlled four-wheel drive system is now no longer a feature exclusive to BMW X models, providing superior traction, optimal safety and captivating dynamics. The xDrive system's characteristic capabilities are now also available to an ever-increasing number of models. Even more variety is assured by additional engines types for the new BMW X3 and an expanded selection of four-wheel drive models in the BMW 5 Series. By the spring of 2011, 47 BMW models will be available with xDrive - from the BMW X1 with its enthralling sporty handling up to the highly sophisticated, elegant luxury sedans of the BMW 7 Series.



3. BMW at the 81st Geneva Motor Show 2011. (Full version)

3.1 The future of intelligent networking: The BMW Vision ConnectedDrive.

At the beginning of the 1970s BMW began work on networking the vehicle with the outside world and networking the vehicle's own systems with each other in order to realise innovative information, communication and assistance systems. Since those early days, enormous progress in networking has been made - progress that was primarily driven forward by the creative, innovative strength of the BMW Development Engineers. Many of these innovations such as the Park Distance Control or the Integrated Navigation System have set standards for the entire automotive industry.

Today, BMW ConnectedDrive is the epitome of intelligent networking of driver, vehicle and the environment. In the meantime, the BMW ConnectedDrive product portfolio includes numerous innovative features which considerably raise the level of comfort during the journey, allow Infotainment to be experienced in a whole new dimension and which significantly increase the level of safety for people both inside BMW automobiles and for those in the vicinity.

The BMW Vision ConnectedDrive concept study extrapolates the principle of intelligent networking of driver, vehicle and the outside world into the future. The vehicle is transformed perfectly naturally into a fully integrated part of the networked world and sets new standards in future comfort, infotainment and safety features. The BMW Vision ConnectedDrive shows most impressively the potential that BMW ConnectedDrive technologies hold for the future. The concept study should be viewed as a sculpture, as a vision, giving these innovative technologies and forward-looking ideas physical form, portraying them and breathing life into them. Please visit www.visionconnecteddrive.de on the Web or www.visionconnecteddrive.mobi via a mobile device for visual impressions and detailed information on the BMW Vision ConnectedDrive.

Design expresses networking - the creation of the connected vehicle.

The overall theme of the emphatic design of the BMW Vision ConnectedDrive vehicle is "connect and network" and is divided into the three areas of safety,

infotainment and comfort. The fundamental concept of BMW ConnectedDrive - the intelligent networking of driver, vehicle and the outside world - is expressed on four levels: the display and operating concept, an unparalleled light installation, the design itself and the integration of the whole concept into the multimedia setting of the stand at the motor show.

From the inside to the outside – the vehicle concept.

The human being stands firmly in the focus of BMW Vision ConnectedDrive, more so than with any other vehicle. The vehicle and its functions have been designed to cater to the needs of the driver and the passenger - they are the starting point and the end of each and every interaction. This orientation towards the passengers is most obvious in the interior. Clear, enclosing symbolism divides the interior into three levels that could also be described as layers or shells. Each level expresses one of the three themes of BMW ConnectedDrive - comfort, Infotainment and safety - and integrates the appropriate functionality, operating panels and displays. By creating the three layers in the BMW Vision ConnectedDrive's interior, the layering principle, something also well known from BMW Vision EfficientDynamics, has been consistently further developed. The term "layering" describes a new approach to the BMW Group's concept of design and its design language, redefining the way surfaces, interfaces and materials have been treated in the past. By working with different layers, organic radii and surfaces, the layering concept breaks up large volumes like the instrument panel, thus creating free space for features such as ventilation, operating elements or trays. The result is a modern, organically aesthetic, light and emotional design.

Fibre optics in various colours define the three levels and formally underscore the differentiation between each distinct area. All three areas have a dedicated, individual light installation, each discerned by colour, but also by rhythm, motion and texture. When a feature is activated, the path taken by the information through the vehicle is illustrated by means of transparent surfaces and fibre optic lighting, quite literally highlighting the interaction between the environment, the vehicle and the driver in the context of BMW ConnectedDrive.

Safety - focussing on the vehicle's primary task.

The central area of safety symbolises the interaction between the driver and the environment with active safety measures such as driver assistance systems. These are features that enable the vehicle to pass information relevant to safety on to the driver. Very clearly outlined, the first level encompasses the driver in the interior of the vehicle like a ribbon, thus defining his area of responsibility. To further aid clarification, red/orange fibre optic strands run from the sensors at the front of the vehicle, are routed very closely around the driver's zone and continue to the rear lights. All of the lines of the first shell come together in the cockpit that is extended into the "cone of vision", a transparent cone-shaped surface open to the driver on the bonnet. The cone of vision symbolises the driver's focus on the road ahead and on the concentration of information that is flowing in the opposite direction, towards him.

The safety layer bundles all of the information and operating elements relevant to driving the vehicle as is characteristic and typical of BMW's driver orientation. This is where the two instruments that provide the driver with access to the entire spectrum of relevant information are located. The windscreen is an integral part of the Head-Up Display and provides important current information about the journey - including speed, navigation instructions and fuel consumption - to the driver without him ever having to take his eyes off the road. In addition, if required, the freely programmable instrument cluster located in the scoop will provide extra in-depth information to supplement the Head-Up Display.

The orange fibre optic strands running below and alongside the cone of vision represent the safety-specific information flow in the direction of the driver and are the link between the sensors in the front and rear of the vehicle and the driver. Numerous sensors monitor the environment in front, behind and on both sides of the vehicle. These are capable of recognising people and other vehicles and pass relevant information to the driver. The entire front sensing system is integrated into the headlights, the "eyes" of the vehicle, scanning the space ahead. The same applies to the rear. The sensing system for monitoring the space behind the vehicle, including cameras, is integrated into the taillights.

Infotainment - connection instead of isolation.

The second level, the infotainment level, encompasses the safety level and extends the sphere of action to the passenger. With an embracing gesture encompassing both seats, the Infotainment zone defines a communication level between the driver and the passenger and also spatially promotes active social exchange and the encounter between the two. In the Infotainment layer too, fibre optic strands outline the space. The receiving antenna with a Perspex cover is located between the two seats is the source of this blue-themed light installation. From the point of origin the information symbolised here by light flows to the information displays in the driver's and passenger's individual information zones via a yoke enclosing both seats.

The Passenger Information Display is mounted in the instrument panel in front of the passenger and is the gateway to the passenger's world of entertainment. When it is inactive, it is invisibly integrated into the instrument panel. However touching the area below, which is covered with a transparent, conductive fabric, will bring it to life. Using the touch-sensitive area, the Infotainment features on the display can be manipulated and controlled at just the touch of a finger. Light sources in the fabric glow when touched and provide the passengers with feedback on their actions, i.e. the vehicle interacts with the passenger.

The antenna, which can be seen under a Perspex cover in the middle of the vehicle behind the headrests, is the link between the BMW Vision ConnectedDrive and the world of Infotainment. This antenna does a very similar job to the well-established fin-shaped antennas mounted on production cars.

Comfort - communication between the vehicle and the environment.

The third level comprises the vehicle itself and focuses on the communications level of the two passengers and the outside world, something central to BMW ConnectedDrive. In the BMW Vision ConnectedDrive, the connection between the vehicle and the environment is expressed primarily in the peripheral zone of the automobile. Instead of two wing mirrors, two fin-shaped antennas provide the link to the world of data. No matter whether navigation and traffic information or mobile Internet, these antennas either pick

up information relevant to the comfort of the passengers and channel it to the interior of the vehicle or they transmit information to the outside world.

Since the vehicle itself acts as the link to the outside world, the green fibre optic strands depict the comfort layer around the entire vehicle. The light flows via the antennas into and out of the vehicle; the outside areas of the vehicle are particularly emphasised.

The division of the three levels is also reflected in the conception of the colours and materials. Seat shells, clearly separated from one another, in premium grey leather portray the first level and the individuality of the passengers while a ribbon of anthracite grey nubuck leather unites the two areas over the door and the instrument panel, depicting the second level. Interactive Silver, the colour of the exclusive exterior paintwork, is a light, smoky grey with a silk matt finish, stressing the technical character of the vehicle and accentuating the language of form. The consciously understated, achromatic colours accentuate the orange red, blue and green light installations, effectively highlighting the three levels.

The exterior design - a true BMW.

As a two-seater roadster charged with emotion, the BMW Vision ConnectedDrive is a particularly dynamic, purist interpretation of the characteristic BMW language of form: the long bonnet, the long wheelbase and the passenger compartment set well back seem to accelerate the vehicle even at a standstill. The bonnet and the windscreen flow into one another to form a homogenous surface and endow the BMW Vision ConnectedDrive with an extraordinarily flat, sporting silhouette. Within these tight roadster proportions, distinctive, concise lines flow over the taut surfaces of the vehicle's bodywork. The resulting play of light and shadow imparts a fascinating and emotional character to this concept study. The expressive 20-inch wheels, fashioned in three dimensions, underscore the sporting, dynamic character of the vehicle.

The front of the BMW Vision ConnectedDrive manifests the typical characteristics of BMW design, with a strong horizontal orientation, stressing width. The kidney grilles and dual, round headlights have been designed in a particularly flat fashion and lend the front a dynamic, modern expression.

Below these, two large air vents emphasise the width of the vehicle, giving it a decidedly sporty look.

The door concept is a particularly distinctive feature of the exterior of the BMW Vision ConnectedDrive. Developed with the innovative, electro-mechanical retracting door mechanism of the BMW Z1 in mind, which can be legally driven with its doors open, the idea has been extended and now finds application in the BMW Vision ConnectedDrive. Two sliding door elements - one inside, one outside - disappear into the bodywork of the vehicle when the door is opened, enabling entry. While the outer shell slides forward, the inner shell disappears into the rear area of the vehicle with a movement in the opposite direction. The BMW Vision ConnectedDrive can also be driven with the outer doors open, a central aspect of the vehicle.

The expressive, modern surface work evident at the front and on the sides of the vehicle is continued at the rear. Two large air outlets make the formal connection to the front and underline the sportiness of the vehicle at the rear. The rear lights, placed at the extreme outside of the back of the vehicle, feature the distinct BMW L-design and have a strong sculptural character. Just as at the front of the vehicle, the rear sensor technology is also integrated into the lights. The concept of layering used in the interior, in which a component takes on a number of tasks, is thus carried over to the exterior.

The BMW Vision ConnectedDrive concept car was consciously designed as a roadster, as the vehicle is able to show its overall creative concept best by way of the open roadster design. Seen from above, the interior design, light concept and exterior design fuse into a very clear, unmistakable statement: BMW ConnectedDrive.

Changing perspectives - the Motor Show presentation.

In order to do full justice to the BMW Vision ConnectedDrive at the 2011 Geneva Motor Show with all of its advances and innovations, the presentation not only includes the concept car itself thus but also a display of the vehicle on a large high-resolution LED screen. The motor show visitors thus experience the BMW Vision ConnectedDrive from two perspectives. At first, the vehicle drives through three virtual scenes, which highlight the features of the individual levels of safety, Infotainment and comfort. Any

additional information made available to the passengers, via the Head-Up Display for instance, is embedded into this virtual presentation.

In the second scene, the perspective changes to a bird's eye view. A part of the LED screen slides away, revealing a second actual physical model of the BMW Vision ConnectedDrive, integrated into the media wall. This "avatar technique", a real actor in a virtual environment, makes the bird's eye view possible and allows the visitors to better experience the events in and around the vehicle portrayed in the scenes specific to the three levels. The individual levels are thus presented to their best advantage by the light installations and the network that exists between the vehicle and its environment, unseen in practice, is rendered visible. The transparent surfaces, fibre optic cables and antennas demonstrate how the different information flows move, which paths they follow when specific events take place and how the vehicle is linked to the environment, the driver and the passenger.

The future of BMW ConnectedDrive in three scenarios.

The BMW Vision ConnectedDrive integrates a multitude of features and approaches, all with great future potential. All these functions are based upon concrete research and pre-development projects. The engineers of the BMW Group are already working today on turning the functionality on show into reality. In three different scenarios, the BMW Vision ConnectedDrive illustrates the way the individual levels work and shows what BMW ConnectedDrive will be delivering in the future. So jump in! The features and technologies in the individual levels of the BMW Vision ConnectedDrive are best explained during a short drive.

Comfort - the vehicle is your own personal concierge.

In the first BMW Vision ConnectedDrive scenario, you are alone in the automobile. After you get in, your smartphone automatically connects to the vehicle, the vehicle-specific apps are activated and can be accessed from the main vehicle menu on the freely programmable instrument cluster. The vehicle then immediately synchronises with your calendar and learns that you have a lunch appointment with a colleague in town very shortly. It passes the address of the restaurant to the navigation system and searches for a suitable route in order to arrive at the appointment on time. Up-to-the-minute traffic information is a component of the route calculation, as well as preset preferences, which for instance might get you there particularly quickly or particularly efficiently. In addition, parking options are considered as well as alternative methods of getting there by public transport.

On the way to the restaurant, you receive a text message from your colleague. The Head-Up Display makes you aware of the arrival of new text message, you can read the message itself on the instrument cluster, or simply have it read out loud to you via the text-to-speech feature. Your colleague writes that he is already at your agreed meeting point but that the restaurant is much too crowded. He asks you to suggest an alternative. You then activate the BMW Assist Information Service. Your personal operator in the BMW ConnectedDrive Call Centre looks for an equivalent option nearby and, once you have agreed to his or her suggestion, he or she makes a reservation for you. This Concierge Service also transmits the new address information to your navigation system, you confirm the new destination in your navigation system and the guidance system swings into action. Afterwards, you activate

the vehicle's text message feature and using speech-to-text, dictate a message to your colleague with the address of the new restaurant.

The alternative restaurant is located on the 25th floor of a high-rise building that has its own parking garage. When you arrive, the vehicle indicates the nearest free parking spot and directs you to it using augmented reality on the Head-Up Display. Before you leave the car and your smart phone disconnects, the vehicle transmits a MicroMap to your mobile, detailing the last few meters through the building to the restaurant. Your mobile then takes over the guidance function. After you have got out of the car, the automobile drives itself automatically into the parking spot.

Networking ensures the highest degree of navigational comfort.

The scenario shown here illustrates mainly future uses of networked navigation, comfortable parking functions and maximum integration of consumer electronics devices (CE devices). Already today, with mobility services such as the car park search, a BMW driver will not only be guided to a parking garage or a parking spot but the BMW Parkinfo function will even automatically show the driver all the currently available parking spots in that parking garage. Over 820 parking garages throughout Germany already provide this data dynamically. The "Remote Controlled Parking" research project has already demonstrated in prototype that the capability of vehicles to park themselves is a reality. Once all passengers have left the car, the car drives into the garage on its own. This manoeuvre is activated using the car key. This is just one example of how assistance systems networked with their environment can in the future deliver automated driving features of great value to customers.

Since 2006, BMW drivers using "Send to Phone" have been able to load this last stage of the journey to a mobile device to ensure that no time is lost when walking the last few meters to the ultimate destination. Navigation by means of vehicle and CE device within large areas that do not appear on current navigation maps and even within buildings, is under development by specialists of the BMW Group as part of the "microNavigation" research project.

MINI Connected and BMW Connected are an excellent illustration of how tightly the world of smartphones can already be integrated into vehicle

architecture. Amongst other things, Webradio, Facebook and Twitter can be made accessible in the automobile via a vehicle-specific app. In the future, many enhancements will take place in this area, due to the application-based character of the system. These will be integrated simply by updating the application. The recognition of CE devices is not the only area where great strides forward are being made. Today, the vehicle can read out loud using text-to-speech; as a part of the “MessageDictation” research project, BMW engineers are currently working on the recognition of free text so that the driver will be able to “write” a text message or e-mail simply by speaking, without taking his hands off the wheel.

The world of Infotainment in the vehicle.

In the second BMW Vision ConnectedDrive scenario, you experience what BMW ConnectedDrive will be delivering in terms of Infotainment in the future. At the beginning of this scenario, you are the passenger. While driving through a city where you have never been before, you activate the Emotional Browser via the touch sensitive area on the instrument panel. The Passenger Information Display in the instrument panel comes to life. You immediately receive information, formatted very much like magazine articles, on points of interest such as cafés, museums or sights of interest in the vicinity. The Emotional Browser gives you the ability to easily filter the information to meet your requirements, to organise it and change the layout of the display.

You are driving past a café renowned for its good music. The Emotional Browser shows that a playlist of selected titles played in the café is available as an audio stream. You view the titles and decide that you would like to listen to the music. You send the playlist to the driver with a wave of your hand. It is displayed on the instrument cluster while you are waiting at the next red light. The driver also likes the playlist and confirms that he also would like to listen to the music by using the multifunctional steering wheel or the iDrive Controller. Streaming commences and the music plays. Simultaneously, the cover of the playlist appears in the menu bar under Entertainment/Multimedia and is displayed while the music is playing.

With good music playing in the background, you decide to find out a little more about the buildings around you and activate the “architecture” filter. The Browser now exclusively shows you relevant information on the architectural

highlights, both near and far. While you are being provided with detailed information on your display, the Head-Up Display discreetly points out features of architectural interest on the buildings that you are passing to the driver.

One building interests you in particular so you retrieve detailed information about it. It is a museum that is currently hosting an exhibition that appeals to you. A gesture is all it takes to pass more detailed information on the exhibition to the driver's instrument cluster and to suggest that the museum become the new destination. The driver can either briefly take a closer look or accept the address straightaway as the new destination for the navigation system. Once the new destination has been confirmed, the vehicle informs the driver of the distance to the building, journey duration and makes suggestions on alternative routing. You purchase tickets to the exhibition online during the journey. As soon as the destination comes into view, the driver is provided with a highlighted augmented reality view of it, helping you to quickly complete the last stage of your journey.

Location-based information and intelligent filter functionality.

The BMW Vision ConnectedDrive Infotainment scene is based primarily on location-based information. Only information on the surroundings falling within a certain, predefined radius is shown. The filter features allow the information available to be filtered by content and to be displayed as a specific selection and even personalised. These filter settings can be made in the comfort of your own home or can be carried out spontaneously in the vehicle. Individually tailored information is thus obtained from raw data. The filters work semantically, ordering information not just by keyword but also by the meanings associated with that keyword. In addition to the "architecture" filter, filters such as "leisure activities" or "events" display cinema schedules, concerts and exhibitions next to one another - according to preferences that have been set up or learned. The predefined filters are not static. They can be adapted to suit individual preferences or can be set up from scratch. Location-based services enable the information available to be used to create a digital tour of the city or to book a ticket, complete with the appropriate entry in the digital calendar.

Location-based services in all BMW vehicles - available right now.

As early as the beginning of 2002, BMW ConnectedDrive started to make use of location-based services possible via the Information Service, either from the customer's home or by using the Internet access point in the vehicle. In 2007 this was supplemented by Google Local Search and in 2010 was expanded yet again to include pictures of the destination supplied by Google Panoramio and Street View. Addresses found can be passed directly to the guidance system of the integrated navigation equipment. In addition, the BMW ConnectedDrive Information Service is always available by telephone with the right answer to your question - with opening times or entrance prices for example. All types of questions - the location of a duty chemist, flight information, the nearest DIY centre or the address of a friend - are answered personally in a telephone conversation. If you so desire, the Information Service will transmit the address and contact details of your destination directly to the vehicle's navigation system. The address is then confirmed at the touch of a button on the BMW iDrive Controller.

In order to make the filter features even more intuitive in the future, the BMW Group is conducting research into semantic information processing. The Mood-Based Playlist is a good example. This feature gives the driver quick and intuitive access to music that might appeal to him at that moment. The selection of music is not limited to his private collection at home or to the MP3 player but is drawn from the unlimited content of the Cloud. Based upon the mood selected, the Mood-Based Playlist puts together a pre-selection of music for the driver, which he can then reduce even further with additional parameters such as genre or period. The driver is treated to a personal selection of music, tailored to his own taste, drawn from millions of songs - quickly, simply, without complicated searching and available anywhere.

Looking ahead, staying safe.

In the last scenario we find ourselves back in town. Together with your passenger, you are driving along busy streets. The navigation system is activated. Via the three-dimensional Head-Up Display, you have all the information relevant to the journey such as speed, fuel consumption and navigational details directly in your field of view. Thanks to the augmented reality feature, the navigational details appear to be on the street itself and show you the way forward. In addition, the freely programmable instrument

cluster displays a two-dimensional map of your surroundings, with your route highlighted upon it. Your passenger is watching a film on the Passenger Information Display in front of him. All the while, the sensory system constantly scans the space around the vehicle and along the chosen route.

Caution! Several sets of traffic lights on your route have just failed. The vehicle immediately projects a warning directly into your field of view on the Head-Up Display. Simultaneously, the instrument cluster provides you with a map of the affected area, showing in detail precisely which traffic lights along your route are out of operation. The warning also stops the film playing on the passenger's display so that nothing will distract you from the hazard ahead. In all the situations in which BMW ConnectedDrive issues a warning, the fundamental principle is that warnings have priority over any other information. This gives you the best possible opportunity to grasp the situation, evaluate it and react appropriately. After the initial urgent warning, the warning icon moves off to the side, reminding you to pay greater attention than usual while continuing your journey. The film resumes where it stopped.

Making the invisible visible - sensors that can see around corners.

Just before the road junction with the first set of failed traffic lights, a new warning appears: danger of collision! Even before the road junction comes into view, your vehicle has exchanged information with other road users on the route ahead and has recognised a potentially dangerous situation. A car is approaching the road junction from the left at full speed even though it does not have right of way. If both vehicles maintain their present courses and speeds, a collision is likely. Your vehicle immediately makes you aware of the probable collision on the Head-Up Display and highlights the approaching car on a map on the instrument cluster. Again, the film on the passenger's display is stopped. As soon as the other car comes into view, it will be highlighted by an augmented reality outline. This gives you the opportunity to brake in time, let the other vehicle pass and to avoid a possible accident.

Further along the route, suddenly a vehicle unexpectedly emerges from a parking spot on your right. The sensory system immediately registers this and shows the emerging vehicle as a hazard in the Head-Up Display. The brakes are automatically applied, reducing your speed, and the minor jolt prompts you to deal with the situation yourself and to either continue braking or to take

evasive action. Since the peripheral scan has shown that avoiding action will not be dangerous, the vehicle simultaneously makes an avoidance suggestion on both displays in the form of an arrow positioned over the lanes in the road. Displaying the options available in augmented reality allows the driver to quickly grasp the situation so that he can react intuitively, promptly and appropriately.

Car2Car communication and automated actions.

During this short sequence of events, the safety features of the BMW Vision ConnectedDrive warned you of three critical situations and helped you avoid two very probable accidents. This scenario elegantly demonstrates the potential of vehicle-to-vehicle communication, advanced object recognition and partially automated safety features. The BMW Group has been conducting intensive research in these fields for many years and has developed key functionality such as the BMW Night Vision Pedestrian Recognition System to a level where it can be put into series production.

The direct exchange of information with other road users via vehicle-to-vehicle communication (Car2Car) allows the car to “look into the future” and to “see around corners”. It can thus determine where other vehicles or people are and how they relate to your own vehicle’s route and it can recognise critical situations at an early stage. The combination of partially automated safety features with a sophisticated environment recognition system acting via sensors and with the consolidation of sensor data puts you in a position to carry out a controlled emergency manoeuvre should a critical situation arise - either emergency braking or avoidance, depending upon the situation.

The fundamental principle of BMW ConnectedDrive safety features, both today and in the future is as follows: as long as the driver is able to take action, his actions will always take precedence over any active intervention on the part of the vehicle. Only if the driver does not react appropriately or is unable to react at all, will the vehicle provide support in the form of automated intervention, as a last resort.

Status of current research at the BMW Group.

In a multitude of research projects BMW Group engineers are already working on making the illustrated scenarios a reality. In the AMULETT and Road Junction Assistant projects, cooperative sensory systems and vehicle-to-

vehicle communication over WLAN allow prototypes to “see around corners” even today and to recognise unseen pedestrians or vehicles at an early stage. If there is the risk of a collision, the vehicle warns the driver so that he can brake or take evasive action. If there is no time left for braking, in both projects the vehicle will slow down of its own accord. The active emergency braking system is a research project in which the vehicle itself is able to recognise the danger of critical rear-end collisions. It warns of a collision in a multistage scenario and, if necessary, will decelerate the vehicle to a halt in order to avoid an accident, even from high speeds.

The BMW Group development engineers are also working on securing the area alongside the vehicle. In a prototype built by members of the Lateral Collision Avoidance project, a driver assistance system prevents vehicles coming too close to one another laterally and also prevents collisions. If a vehicle comes closer than a certain critical distance, the display switches from providing information to issuing a warning, supplemented by a light steering movement, which can be overridden at any time. If the driver follows this haptically-implied course of action, the imminent collision will be avoided.

In order to automatically carry out avoidance manoeuvres, an extremely large area around the vehicle needs to be reliably monitored in order to take into account oncoming and turning traffic. Apart from this, the vehicle needs to be able to steer itself. This ability is demonstrated by the prototype built for the “Traffic Congestion and Tailback Assistant” advance development project. The intelligent cruise control and distance maintenance feature now deals not only with linear acceleration but can also steer automatically to a limited extent, thus keeping the vehicle from coming off its lane. Since today the space around the vehicle that can be monitored is limited - especially at high speeds - this project is aimed primarily at raising the level of comfort and convenience, rather than achieving fully automated driving.

The “Emergency Stop Assistant” research project demonstrates uses of these technologies in the service of safety. In an emergency on the motorway, the vehicle steers the incapacitated driver automatically across several lanes of traffic to the hard shoulder and safely comes to a stop. At the same time, it makes a fully detailed emergency telephone call.

In the case of BMW Vision ConnectedDrive, the future is already here. It is reality today. The engineers of the BMW Group are working incessantly to turn this into reality for series production vehicles, too. However, customers can already benefit today from the sophisticated driver assistance systems in the vehicles of the BMW Group. The camera integrated into the BMW Night Vision system is able to detect not just people and animals at twilight and at night but it also analyses the pictures it captures, recognises people, calculates possible collision corridors and warns the driver of dangers which are barely perceptible with the naked eye or which cannot be seen at all. Safety is also considerably enhanced in the current range of BMW vehicles by the Active Cruise Control with Rear-End Collision Warning and Braking feature or by the Advanced Emergency Call from BMW ConnectedDrive.

Interface design – in touch with your world.

The new display and operating concept in the BMW Vision ConnectedDrive is both visionary and innovative. As the heart but also as the expression of the highly integrated networking of the vehicle, these interfaces are the points of contact via which driver and passenger interact with the vehicle on the one hand and with the environment and the world of data on the other. Three independent display instruments, fully networked with one another, process and prepare the incoming information and present relevant information in the driver's and passenger's fields of view. Perfectly matched, they expand awareness of the outside world and of the interior of the vehicle.

Ergonomic, needs-based access to information has always been one of BMW's special areas of expertise. With the three-dimensional display in the BMW Vision ConnectedDrive, the BMW Group development engineers underscore this most impressively. The three-dimensional Head-Up Display and the three-dimensional freely programmable instrument cluster, familiar from BMW Vision EfficientDynamics, hold the entire spectrum of information for the driver. With the Passenger Information Display, the passenger has - for the first time - his own independent display, which cannot be seen by the driver. The displays, along with their functionality and locations, have thus been carefully tailored to these two people and placed in their lines of sight.

The three-dimensional Head-Up Display - ensuring that vital information is always in view.

A large section of the windscreen, directly in front of the driver, acts as a Head-Up Display in the BMW Vision ConnectedDrive. In the BMW Vision ConnectedDrive this area, enhanced by augmented reality functionality, is the main information display interface for the driver, taking over from a conventional instrument cluster. Information pertaining to the journey such as speed, navigational details or warnings is projected onto the windscreen. The information shown on the Head-Up Display appears directly in the driver's field of view and looks as though it is hovering above the bonnet. The major benefit is that the driver's eyes do not need to refocus to assimilate the information because it is presented exactly where his attention is - on the road ahead.

Innovative display technology enables various pieces of content to be shown positioned three-dimensionally, one on top of the other. This superimposition allows different signals to be displayed either in the foreground or the background, depending upon the driving situation and - more importantly - upon their significance. For example, the speed of the vehicle will remain visible in the background while current information on routing or warnings are being displayed in the foreground. A further feature of the three-dimensional Head-Up Display is its ability to show the driving situation enhanced by augmented reality. The actual driving situation can be overlaid with virtual information, enriching it. The driver sees more. The Head-Up Display places the additional virtual information precisely over the actual driving situation. This, for instance, enables the superimposition of navigational information on the street itself or the highlighting of certain buildings or hazards such as vehicles or pedestrians. Thanks to the highlighting, the driver can assimilate important information much quicker and take appropriate action.

More information - the freely programmable instrument cluster.

The perfect piece of equipment to augment the three-dimensional Head-Up Display is the freely programmable instrument cluster, which also has three-dimensional capability. It acts as the central information display. As an expression of maximum driving orientation, it is positioned directly in the driver's line of sight and takes the place of a conventional instrument cluster. The driver can thus see the information it displays much better, and it keeps the time during which he is obliged to avert his eyes to a minimum. The instrument cluster supplements the projected information in the Head-Up Display with further information: for example, a map showing the current route, entertainment information such as covers or title lists but also short texts like text messages or e-mails. It is therefore far superior to a conventional instrument cluster. Just as with the Head-Up Display, several layers allow content to be displayed in three dimensions and superimposition enables the prioritisation of the individual pieces of information. Since the display interface is freely programmable, the BMW Group developers have succeeded in presenting the information in the instrument cluster in an optimal manner, displaying and prioritising it in accordance with its warning or informational character.

Passenger information display - personalised passenger entertainment.

Since the conventional central display has migrated to the instrument cluster, the passenger has now been provided with his own interface in the form of the Passenger Information Display. Detached from the driver's two display instruments, the passenger has been given his own arena of interaction. Positioned so that the driver cannot see it in order to avoid distracting him, it enables the passenger to control his information and entertainment programme to suit his own requirements but also to access additional information which he can then transfer to the driver's instrument cluster with the wave of his hand. This capability makes the Passenger Information Display in the BMW Vision ConnectedDrive an extremely important feature and illustrates the interconnecting BMW ConnectedDrive philosophy in detail. Here, information, music or address details for the navigation system can be researched by the passenger during the journey and then passed on to the driver.

The passenger interface is operated via a touch-sensitive surface located just below it and controlled by gestures. Points of light in the conductive cover of the instrument panel react to each and every touch and provide feedback on the interaction between the passenger and the vehicle. The geometric separation of operating surface and display into two layers ensures optimum operating characteristics. The operating element, located on the lower layer reaching towards the passenger, is optimally accessible. The display is located above it and is further away to optimise viewing. When inactive, the display disappears into the homogenous surface of the instrument panel and is invisible. The integration of operating surface and display into layers and corresponding surfaces gives expression to the special philosophy of functionality of the layering design: form and surfaces are functional and in this case serve as display location and operating surface.

Emotional Browser - surfing the reality.

A special feature of the passenger display is the Emotional Browser: an emotional, virtual gateway to information enabling the occupants of the vehicle to familiarise themselves with the immediate environment by means of information presented in a magazine format. The passenger can simply browse, highlight or exclude topics of interest by means of filters, thus creating

a completely new means of access to information - emotional and intuitive. The Emotional Browser therefore meets two criteria. On the one hand, it expands the passenger's awareness with additional information on the environment and on the other hand it functions as a filter, allowing only desired or relevant information through. Various (semantic) filters allow the flood of information flowing through the Emotional Browser to be specifically filtered and allow access to the information available according to the interests of the users. Thanks to information provided by the Emotional Browser, a building you might have driven past unnoticed, you now discover to be a museum with a rich history that is currently hosting an interesting exhibition. Information from the Data Cloud and from the location-based services connected to the Emotional Browser allow this data to be used to a greater degree, for instance for navigation to the newly-discovered restaurant, for buying tickets to the current exhibition or for an audio-visual city tour.

BMW ConnectedDrive - in touch with your world.

The origins of Connected Drive.

As a pioneer in the field of automotive electronics BMW started at the beginning of the 1970s to develop technologies and innovations to acquire information for the driver from the environment, thereby raising the level of active safety. Major milestones resulting from this research work were chassis control systems such as the braking control system ABS (1979), the automatic stability control system (plus traction) with braking intervention (= ASC+T, 1989) and the dynamic stability control system (= DSC, 1999). Today, BMW ConnectedDrive systems such as the Rear-End Collision Warning System with Braking or the BMW Night Vision System with Pedestrian Recognition extend the active safety of BMW vehicles and make an important contribution to accident prevention. Above and beyond these, driver assistance systems like the Active Cruise Control with Stop & Go feature or the Parking Assistant add a great degree of comfort to car ownership.

The basis for these and many future developments is the interaction between the vehicle and the environment. Intelligent sensors monitor the surroundings and are able to recognise objects such as other vehicles and pedestrians. The BMW engineers have not just developed safety systems. Over the years, the BMW Group has succeeded in widening its technological lead in innovation with numerous pioneering driver assistance and comfort-enhancing systems. After the introduction of the first onboard computer with an external temperature sensor (1980) and the first parking distance control system in the world (1991), BMW began fitting the first integrated navigation system in Europe in 1994. This laid the foundation stone for networking the vehicle with the environment and thus for BMW ConnectedDrive itself. The mobile telephone connection between the vehicle and the Service Centre allows the use of larger, more up-to-date quantities of data in the automobile, from which sprang the multitude of informative and useful BMW Assist services. Officially, the term "BMW ConnectedDrive" made its debut in 1999 at the International Automobile Show (IAA) in Frankfurt. In addition to a number of research and development topics, the newly available BMW Assist features of Information Service, Emergency Call (something that was new in Europe) and Traffic Information were presented there. In 2003, BMW ConnectedDrive Teleservices set new standards in terms of maintenance convenience and

efficiency. As early as 1980, the first deployment of telemetry allowed BMW racing engineers to follow in real-time the events taking place within the car, wirelessly from the control room, and placed them in a position to quickly identify any emerging problems. Now, based upon this pioneering technology, your BMW knows itself when a maintenance appointment is necessary and will rapidly forward the relevant data to the BMW Service Department in the event of a technical fault. If necessary, BMW Service personnel can access the vehicle's electronics and can immediately rectify certain problems remotely.

The constantly growing portfolio of products also included the cream of Infotainment. In 1995 BMW became the first automobile manufacturer to offer onboard television. In 2001 BMW Online became the first Internet-based vehicle portal on the Web and in 2004 BMW introduced the world's first fully integrated iPod interface in a vehicle. Since 2008, as the first automobile manufacturer to do so, BMW has provided freely available, fully integrated Internet access in the vehicle.

Right here, right now: perfect networking for more comfort, infotainment and safety.

Today, the BMW ConnectedDrive philosophy encompasses all of the innovative functionality and features that are technically based upon the networking of the driver, the vehicle and the outside world. This unique portfolio of innovations addresses comfort, Infotainment and safety and thus driving pleasure. A multitude of features are available for each vehicle series and for each automobile. These include the telephone-based Information Service with data transfer to the navigation system, the import of routes to the navigation system via the mobile telephone network or via a USB interface, the camera-based Traffic Sign Speed Limit Recognition System as well as the Emergency Call, which reports the vehicle's precise location so that the emergency services can quickly be guided to the scene of an accident.

Comfortable driving and vehicle handling - the vehicle as the perfect travel manager.

The integrated navigation system has been guiding BMW drivers reliably to their destinations since 1994. Today, a navigation system offers a lot more than simply the ability to get to your destination and the services provided by BMW ConnectedDrive offer numerous helpful features in addition to pure

guidance. During the journey, the Information Service provided by BMW ConnectedDrive acts as a virtual co-driver, locating restaurants, sights and other points of interest (POIs) and sending the respective addresses to the navigation system. It is even able to make reservations. On the road, Real Time Traffic Info, going into series production in 2011, keeps the driver abreast of the current traffic situation on the busiest roads - motorways, main roads as well as roads and side roads in towns - in real-time. Thus traffic jams are a thing of the past. As soon as traffic congestion sets in, it can be avoided. Shortly before reaching the destination, functions available in all BMW automobiles since 2010, i.e. Google Panoramio and Street View, make actually finding your destination much easier. They show you actual pictures of your destination, downloaded online during the journey. All of these comfort-enhancing features from BMW ConnectedDrive turn the vehicle into a perfect travel manager, keeping the driver in touch with his environment during the journey and supplying him with important information.

Infotainment - a powerful combination of information and entertainment in the Vehicle.

With the integration of smartphones, USB interfaces, Bluetooth and Internet access BMW ConnectedDrive has already transformed the vehicle into part of the digital world. But only since the introduction of BMW ConnectedDrive's intuitive operating logic and the well thought-out display concept can the full spectrum of features be enjoyed, ergonomically and distraction-free. From 2011 onwards, access to Facebook, Twitter and Web Radio can be optimally integrated into your BMW with the iPhone App "BMW Connected".

LATEST NEWS! BMW now offers a new interface for iPhone integration into the vehicle.

From March 2011, a new vehicle entertainment feature will be available which uses Apple's iPod Out. This is a further BMW ConnectedDrive innovation, which in typical BMW style can be operated via the iDrive Controller, minimising distraction for the driver. The newly developed interface technology offers easy, familiar operation - something that the driver is used to from the iPhone and iPod. The vehicle screen gives the BMW driver direct access to the latest iPod features such as Genius, which allows the driver to automatically generate playlists with songs that fit nicely together from his music library. All of the stored playlists are shown with the original album

covers - just like on the iPhone and iPod. BMW underscores yet again its impressive lead in the Infotainment area.

The optimised display and operating features of BMW ConnectedDrive for playing music support the iPhone 3G, iPhone 3GS and iPhone 4 running under iOS 4.2.1 and higher. Since the software on the user's iPhone allows the use of the various BMW ConnectedDrive features, functionality can be continuously expanded and tailored by software updates, guaranteeing the long-term use of current and future iPhone features. This is the beginning of a new era in the integration of consumer electronics into the vehicle.

All that is required for this comprehensive integration is a snap-in adapter with an USB/audio interface and the special "Apps" option from the BMW range. This new feature is currently available in Europe, USA, Canada, Turkey, South Africa, New Zealand for the BMW 7, 6, 5, 3, and 1 Series Coupes and Convertibles, the X5, X3, X1 and Z4. Availability will be expanded in stages.

Safety - recognising dangers at an early stage and avoiding accidents.

Intelligent chassis control and driver assistance systems are the best means of protection an automobile manufacturer can place at the disposal of his customers to avoid accidents. The sad fact is that the cause of most accidents is human error. For this reason, the safety-relevant innovations delivered by BMW ConnectedDrive significantly extend the driver's capacity to deal with and react to critical, confusing situations on the motorway or in heavy traffic in order to avoid an accident entirely or at least to minimise its effects. Driver assistance systems such as the Head-Up Display or the BMW NightVision System already provide a distraction-free picture, expand awareness and make a great contribution to safety. At the moment the BMW Group is researching safety systems with a greater level of automation, which - if necessary - will be capable not only of automatic braking but which will also be able to take evasive action. But in the face of all of the automatic functionality, the driver must remain - also in future - in command of his vehicle and be in a position to override system intervention. When complex decisions need to be taken, man cannot always be adequately replaced by machine.

What about the future of BMW ConnectedDrive?

As the BMW Vision ConnectedDrive demonstrates, in future, the automobile will become a highly integrated and perfectly natural part of the networked world. The networking functionality will not only simply make the connection of the vehicle to the outside world, but will provide the most intelligent networking possible. Ingenious, needs-oriented solutions, which filter and sort, will make the difference. Because in future, you will be able to be online all the time, almost everywhere. Connectivity will not need to be switched on, it will simply be there. The world's data will be accessible at any time, in any place from an omnipresent Data Cloud spanning the planet. Information retrieved from "the outside" will be indistinguishable from data stored locally. The focus is on providing the right information at the right time. To achieve this, data from the most diverse of sources needs to be processed, consolidated and filtered in a targeted, demand-oriented manner. The goal is to provide the driver, the passenger and the vehicle's systems with optimal information.

Sophisticated display and operating concepts assist in finding the required information quicker and more intuitively while displaying only up-to-date and relevant data to the individual. Location-based, mood-based or situation-based services such as the familiar Google Local Search or the Emotional Browser, which is a part of the BMW Vision ConnectedDrive concept vehicle, are just a beginning. They filter information according to the driver's and the passenger's requirements and ensure that suitable information is available - in appropriate, individual doses. Networking with the outside world will in future also contribute towards the prevention of accidents involving other vehicles and road users. The safety systems presented together with the BMW Vision ConnectedDrive such as the ability to recognise vehicles as yet unseen and the highly automated braking and avoidance system are based upon concrete, on-going research projects such as Car-To-Car Communication or the Traffic Congestion and Tailback Assistant.

BMW ConnectedDrive has a rich history of innovation and now turns its attention to an undoubtedly exciting future. The rapid pace of development in the world of technology provides more and more opportunities everyday to heighten the experiences of Infotainment and comfort but also to enhance safety to an unprecedented degree. Ten years ago, when BMW ConnectedDrive was in its infancy, people were working on realising fax

reception in the vehicle. Today, e-mail and text messages have made the fax a thing of the past. And perhaps in another ten years, everyday life without the functionality featured in the BMW Vision ConnectedDrive today will be unimaginable.



3.2 Consistent advancement in a new diversity: State-of-the-art technologies and concepts from BMW EfficientDynamics.

With its current model range BMW has vehicles in all segments that offer a remarkably favourable relation between performance and fuel consumption. This exceptional advantage over competitors is the result of both the development strategy BMW Efficient Dynamics and the broad diversity of concepts for tomorrow's mobility. Thanks to new high-efficiency, engine-related technologies for reducing fuel consumption, optimised aerodynamics and systematic lightweight construction, the lead continues to grow. The latest innovations include the use of BMW TwinPower Turbo technology in the four-cylinder petrol engine featured in the new BMW X1 xDrive28i, the introduction of the Auto Start-Stop function for vehicles with an automatic transmission as well as the aerodynamics measure Air Curtains featured in the new BMW 1 Series Coupe and the new BMW 1 Series Convertible.

Moreover, in the development area of BMW ConnectedDrive, innovations are being introduced that contribute towards an increase in efficiency in everyday road traffic. Intelligent networking of the vehicle with its environment creates the ideal preconditions for a driving style that offers best possible fuel efficiency. Further pillars of BMW Efficient Dynamics also include, in addition to BMW ActiveHybrid technology, electric mobility. As the next step on the way to CO₂-free mobility, the BMW ActiveE is currently about to be tested in everyday road traffic.

BMW TwinPower Turbo technology: greater driving pleasure, lower emissions.

The continuous optimisation of the effectiveness of petrol and diesel engines is one of the fundamental focal points of the BMW Efficient Dynamics development strategy. As a result of the outstanding innovative strength within the area of drive train development, BMW TwinPower Turbo technology is now available for further engines. The new BMW X1 xDrive28i features a technology package comprising Twin Scroll supercharging, High Precision Injection and BMW's patented variable valve control system VALVETRONIC, which is being used for the first time in combination with a four-cylinder engine.

The 2-litre power unit featuring an all-aluminium crankcase impressively translates the requirements of the BMW Efficient Dynamics development strategy. With a peak performance of 180 kW/245 bhp, it exceeds the output of BMW's previously most powerful 2-litre combustion engine by 55 kW. Hence the new power unit enters a performance range that was previously only reached by significantly larger engines. The new BMW X1 xDrive28i accelerates from 0 to 100 km/h in just 6.1 seconds (6.5 seconds with automatic transmission). Hence it completes the standard sprint 0.7/0.3 seconds faster than the predecessor model featuring a six-speed automatic transmission. At the same time, average fuel consumption of 7.9 litres/100 km (CO₂ level 183 grams per kilometre) as per the EU test cycle is 16 percent lower than that achieved by its predecessor. Even when equipped with the eight-speed automatic transmission, also developed within the framework of EfficientDynamics, the new BMW X1 xDrive 28i offers identical fuel consumption and emission levels.

BMW EfficientDynamics: standard on all BMWs, Auto Start-Stop function now also in combination with automatic transmission.

As opposed to other car manufacturers, BMW offers the most efficiency enhancing technologies not only for selected special edition models or at extra cost, but also principally as standard features and to the greatest possible extent. In order to increase the broad impact of BMW EfficientDynamics, current innovations are being successively employed in further series and models. One example of this is the Auto Start-Stop function, which automatically switches off the engine when the vehicle stops at road junctions or in a tailback, in order to prevent unnecessary fuel consumption. As of the spring of 2011, the number of BMW models in which it will also be possible to use the Auto Start-Stop function in combination with the eight-speed automatic transmission will be increased further. In addition to the BMW X3 xDrive35i and the BMW X3 xDrive20d, the BMW X3 xDrive30d, the new BMW 640i Convertible as well as the models BMW 535i xDrive Sedan, the BMW 530d xDrive Sedan and the BMW 530d xDrive Touring now also feature this efficiency enhancing technology as standard.

In the spring of 2011, the aerodynamics measure Air Curtains is being presented as an additional innovation from BMW EfficientDynamics. Newly

designed front aprons on the new BMW 1 Series Coupe, the new BMW 1 Series Convertible and the BMW 1 Series M Coupe contribute towards a reduction in air resistance. Thanks to targeted air flow routing, aerodynamically unfavourable turbulence within the wheel arch area is significantly reduced.

BMW BluePerformance:

further models now already prepared for the EU6 emission standard.

As of the spring of 2011, further advancements will also be made in the optimisation of emission levels obtained by diesel models thanks to the use of innovative BMW BluePerformance technology. Vehicles featuring BluePerformance technology will, in addition to a diesel particulate filter and an oxidation catalyst, be equipped with a NOx storage catalyst for an effective reduction in nitrogen oxides. The BMW 530d Sedan and the BMW 530d Touring now feature BMW BluePerformance in combination with a manual gearbox. With the new BMW 530d Sedan and the new BMW 530d Touring, the BMW 320d Sedan and the BMW 320d Touring, the BMW 330d Sedan, the BMW 730d and the BMW 730Ld, there are now seven models available that conform to the EU6 standard using this technology.

BMW ConnectedDrive and BMW EfficientDynamics: intelligent networking for greater efficiency.

Thanks to intelligent networking between the driver, the vehicle and the environment, the latest innovations from BMW ConnectedDrive enhance comfort, safety and the use of the infotainment product range. Moreover, new functions, which are currently undergoing development taking them to series production readiness, also contribute towards enhanced efficiency. The main focus of these is on efficiency-oriented route planning via the navigation system as well as a vehicle set-up that assists in achieving a relaxed and at the same time economical driving style.

Ready for series production and ready for the road:

BMW ActiveHybrid technology and electric mobility.

Parallel to the increase in the efficiency of engines and transmissions and for the optimisation of energy management inside the vehicle, the electrification of the drive system offers an enormous potential for increasing efficiency.

Therefore, both BMW ActiveHybrid as well as the development of a likewise brand-typical concept for an all-electric drive system serve as crucial pillars of the BMW EfficientDynamics concept. With the BMW ActiveHybrid 7 and the BMW ActiveHybrid X6, there is already a choice of two series production models featuring an intelligent combination of the combustion engine and electric drive - designed specifically for each model - for enhanced dynamics and a significant reduction in fuel consumption and emission levels. The first purely electrically powered model is now ready for use in everyday road traffic. With the BMW ActiveE, the next step on the way to CO₂-free driving has been taken.

The 4-seater car based on the BMW 1 Series Coupe is being employed within the framework of an extensive field test. The experience and knowledge gained from this test are incorporated into the further development of the electric power train, which is, inter alia, being conducted by the BMW Group within the framework of the Megacity Vehicle concept. With the Megacity Vehicle, which will be ready for series production as an emission-free electric car designed for congested urban areas as early as 2013, milestones are being set not only in the drive technology sector but also in the field of lightweight construction. The Megacity Vehicle will, inter alia, be the world's first mass-produced car to feature an occupant cell made of carbon fibre reinforced plastic.

Thanks to EfficientDynamics, eco-friendly production methods and high social standards for all employees at all locations, the BMW Group has also secured its outstanding position in the Dow Jones Sustainability Index. The ranking list, which is jointly compiled by Dow Jones Indices, Stoxx Limited and the Zurich-based investment company SAM, is considered to be the most important indicator worldwide for entrepreneurial responsibility. For the sixth time in succession, the BMW Group has now been listed as the "world's most sustainable automobile manufacturer".

3.3 Less emissions, more variability: The BMW 320d EfficientDynamics Edition Touring.



114 grams of CO₂ per kilometre and 120 kW/163 bhp - this relation between emission levels and engine performance can only be obtained using BMW EfficientDynamics technologies. BMW achieves this in a premium midrange vehicle, which even offers a luggage compartment volume of up to 1,385 litres into the bargain - the BMW 320d EfficientDynamics Edition Touring. The innovative combination of efficiency, driving pleasure and variability is made possible by the consistent use of technologies for reducing fuel consumption and emissions, including a specific engine design. The BMW 320d EfficientDynamics Edition Touring has an average fuel consumption of 4.3 litres/100 km in an EU test cycle, putting itself clearly in the lead in its vehicle segment in terms of efficiency.

As was previously already the case with the respectively configured sedan version, the German premium automobile manufacturer will, with the launching of the BMW 320d EfficientDynamics Edition Touring in the spring of 2011, impressively substantiate its worldwide leading role in the development of models that offer both exceptionally low emissions coupled with excellent driving dynamics. The 5-seater car is also powered by a four-cylinder diesel engine of the latest generation with Common Rail direct injection technology and supercharging. The 120 kW/163 bhp all-aluminium power unit develops maximum torque of 380 Nm at 1,750 rpm and accelerates the Touring model from 0 to 100 km/h in 8.3 seconds. Top speed is 223 km/h.

Clearly ahead of its competitors:

significantly better dynamics and up to 30 grams less CO₂ per kilometre thanks to BMW EfficientDynamics.

This relation between economy and driving pleasure is unique in the entire midrange market environment. The most economical competitor in the segment of the BMW 3 Series Touring is powered by a engine with almost 40 kW less output and takes almost five seconds longer than the BMW 320d EfficientDynamics Edition Touring to sprint from 0 to 100 km/h. In spite of having less favourable driving dynamics, vehicles boasting

comparable performance offered by other premium manufacturers still emit up to 30 grams more CO₂ per kilometre than the BMW 320d EfficientDynamics Edition Touring.

This makes the Touring model's lead in terms of efficiency similar to that of the BMW 320d EfficientDynamics Edition Sedan. It is the only model within the BMW product portfolio that is even more frugal than the BMW 320d EfficientDynamics Edition Touring with regard to fuel consumption and emission levels. With the benefit of a lower weight and drag coefficient, the sedan has a fuel consumption level in the EU test cycle of 4.1 litres per 100 kilometres and a CO₂ output of just 109 g/km.

Within the fiercely contested midrange segment, both models stand for groundbreaking efficiency combined with the dynamic performance typical of the brand and provide the superior level of technology and quality of a premium automobile made by BMW. As a parallel offer to the BMW 320d, they have the same standard comfort features and are available with virtually all the BMW 3 Series options including unrivalled driver assistance systems and BMW ConnectedDrive mobility services.

The outstanding efficiency of the sedan and touring models is based on a systematic implementation of the BMW EfficientDynamics development strategy. Their 2.0-litre diesel engine has been modified for further enhanced efficiency. What is more, the range of efficiency-enhancing measures applied in other BMW 3 Series models has been extended in the BMW 320d EfficientDynamics Edition with the addition of model-specific innovations. In addition to a longer final drive ratio, these include a low-slung chassis and special aero-rims in the turbine wheel design, which again improve the aerodynamic properties. Hence the drag coefficient of the BMW 320d Touring EfficientDynamics Edition is reduced to just 0.275.

Centrifugal force pendulum in dual-mass flywheel enables comfortable driving without vibrations even at low engine speeds.

In order to ensure smooth, vibration-free running even at low engine speeds, the power unit of the BMW 320d EfficientDynamics Edition is fitted with a so-called centrifugal force pendulum which effectively compensates for the irregular rotations usually occurring at low engine speeds. This new component is integrated in the engine's dual-mass flywheel where it

eliminates vibrations released for engine load requirements, thereby ensuring a comfortable and acoustically optimised power delivery from low engine speeds.

In combination with a longer final drive ratio, the efficiency-enhanced engine design of the BMW 320d EfficientDynamics Edition ensures a significant reduction in engine speeds across all road speed ranges. And even in combination with this load point shift, which benefits fuel consumption and emissions, the spontaneity and running smoothness characteristic of BMW diesel engines is fully retained. The increase in comfort thus achieved encourages the driver to use a higher gear more frequently or indeed avoid shifting down altogether. When accelerating, the BMW 320d EfficientDynamics Edition still shows the agile driving response typical of a BMW.

Less emissions, more driving pleasure:

the potential of BMW EfficientDynamics consistently realised.

The BMW 320d EfficientDynamics Edition features the complete package of measures to reduce fuel consumption and emission levels as applied to the other models of the BMW 3 Series as standard. For example thanks to brake energy regeneration, the generation of electrical current for the vehicle power system is focused on the vehicle's trailing throttle and braking phases where fuel consumption is at a neutral level. The Auto Start-Stop function means that the engine can be switched off during a short stop, preventing unnecessary fuel consumption when idling.

The shift point display in the BMW 320d EfficientDynamics Edition gives the driver early indication of a gearshift optimised for the purposes of efficiency. Both the air conditioning compressor with decoupling facility and the EPS electromechanical hydraulic steering system offer needs-based control. What is more, active air intake flap control helps reduce aerodynamic resistance, thereby increasing efficiency. The BMW 320d EfficientDynamics Edition is also fitted with a diesel particulate filter placed near the engine and fulfils the EU5 exhaust emissions standard.



3.4 The next step towards emission-free mobility: The BMW ActiveE.

With the world premiere of the BMW Concept ActiveE at the beginning of 2010, just a year after presenting the MINI E, the BMW Group underscored the rapid and consistent continuation of its intensive research and development activities in the field of electric mobility. This concept has now become perceptible and tangible reality in the form of the BMW ActiveE.

project i - research and development of tomorrow's mobility.

The BMW ActiveE is the BMW Group's next systematic step towards an emission-free, mass-produced electric vehicle. Within the framework of project i, the BMW Group is carrying out research and development work on the realisation of electrically powered vehicles. The main focus is on the concept of a Megacity Vehicle (MCV) that meets the demands of a sustainable mobility solution for congested urban areas. For this purpose, the BMW Group is conducting field tests on an internationally unparalleled scale for the use of purely electrically driven vehicles in everyday road traffic.

Ongoing field tests in the USA and Europe involving more than 600 MINI E cars are already providing vital knowledge about the demands on future electrically powered production vehicles. Starting in 2011 in the USA, Europe and China, a test fleet of over 1000 BMW ActiveE vehicles, produced at the Leipzig plant, will provide further valuable insights into the everyday use of the vehicle. The findings will serve to deepen the knowledge already gained on the everyday use of electric vehicles and to learn more about customer requirements. The feedback from customers testing the MINI E and the BMW ActiveE will be fed directly into series production of the MCV, which the BMW Group will be launching under a new sub-brand in 2013.

With the BMW ActiveE, the BMW Group is extending field tests on electric mobility with a clear perspective of series-production capability and is intensifying research into electric mobility in everyday road traffic. For this reason, the drive components and energy storage units that will be used in the MCV are being tested on the BMW ActiveE at a pre-production stage. The knowledge gained will be fed directly into series development of the

MCV. With the BMW ActiveE, the future of individual mobility combining driving pleasure with CO₂-free driving is one step closer.

Electric mobility as a supporting pillar of the EfficientDynamics development strategy.

In the development of groundbreaking vehicle concepts and drive technologies within the framework of the EfficientDynamics strategy, the BMW Group attaches key importance to electric mobility. With EfficientDynamics the BMW Group has for some time now been very successful in reducing fuel consumption and emission levels through new and highly-efficient engine generations, enhancement of aerodynamics, the use of innovative lightweight construction and intelligent engine management - and with better performance into the bargain. For instance, CO₂ emissions of the entire vehicle fleet were reduced by around one third in the years 1995 to 2009. Thanks to EfficientDynamics, the company is now able to realise additional economy advantages through the further electrification of the drive train and hybridisation. In the medium term, the BMW Group is developing vehicle concepts for emission-free mobility in larger urban areas. In the long term, EfficientDynamics means the transition to emission-free mobility - using both battery power and regeneratively produced hydrogen.

On the way to sustainable, CO₂-free mobility, the BMW Group now presents the next major milestone - the BMW ActiveE. Following the MINI E, the BMW ActiveE is the BMW Group's second electric prototype. With a power output of 125 kW/170 bhp and maximum torque of 250 Nm, the car accelerates from 0 to 100 km/h in 9 seconds, demonstrating the dynamic and agile characteristics of a BMW, and as is typical of electric vehicles, straight from a standstill. At the same time, newly conceived lithium-ion energy storage units facilitate a vehicle range of around 160 kilometres (100 miles) in everyday operation.

Just like the MINI E, the BMW ActiveE is a conversion car, an electric vehicle based on the body shell of a vehicle with a combustion engine. The BMW ActiveE integrates all electric drive components such as energy storage unit, electric motor and power electronics in a vehicle body that was not originally intended for this purpose - and without compromising on space or comfort in the interior. Therefore, the BMW ActiveE is the BMW Group's first

electric vehicle to offer four fully-fledged seats and a 200-litre luggage compartment. This achievement by BMW developers is even more impressive in terms of the vehicle's role during the initial testing phase. The BMW ActiveE incorporates a pilot series version of the drive train and energy storage unit from the MCV with a partly identical, partly similar geometry in a vehicle from a different concept so that these components may undergo preliminary testing. However, except for a small scoop in the bonnet and a smaller boot, the exterior and the interior design is virtually the same as that of the series production vehicle.

Intelligent utilisation of construction space to ensure optimal functionality.

The BMW ActiveE is equipped with three large energy storage units that are positioned in the area where the engine block, power transmission to the rear wheels and the tank are to be found in a vehicle with a combustion engine. The drive train of the BMW ActiveE - i.e. the electric motor with gear and power electronics - directly on the rear axle in order to save space. Thanks to this measure, the BMW ActiveE corresponds to a conventional BMW 1 Series Coupe with regard to available interior space. Driver and front-seat passenger as well as passengers at the rear have the same amount of space at their disposal as in the BMW 1 Series Coupe and do not have to suffer any disadvantages at all with regard to headroom, legroom or shoulder room. This is due to the ideal positioning of the power electronics, which are located for functional reasons above the rear-axle mounted electric motor. With a volume of 200 litres, the boot offers sufficient space for bottle crates or two 46-inch golf bags.

Crash safety has top priority.

Within the framework of the conversion of the BMW 1 Series Coupe into the BMW ActiveE, 350 newly developed body components, which are invisible to the observer, ensure that the car fulfils the same high standards with regard to crash safety, construction space and comfort as the original vehicle with a combustion engine. One of the major challenges in this respect was the intelligent integration of the energy storage units and drive components into the space made available due to the omission of combustion engine components. At the same time, it was necessary to ensure that the three

large energy storage units located at the front end as well as the tunnel and tank could not be damaged or destroyed.

The front end: crash structure and energy storage units instead of a combustion engine.

In order to achieve the best possible range, the BMW ActiveE is the first limited production electric vehicle in which part of the high voltage storage units is integrated into the front end of the vehicle at the cowl. There, one of the three energy storage units of the BMW ActiveE takes up around half of the construction space normally occupied by the combustion engine.

Extensive measures implemented in this area guarantee optimal passenger safety in the event of a crash and also ensure that the high-voltage storage unit, ancillary components and battery fluid containers remain undamaged.

Hence the BMW ActiveE meets the same high safety standards as a BMW 1 Series with combustion engine, fulfilling not only crash safety requirements stipulated by the government, but also the stringent BMW corporate demands on passive safety, some of which are even higher than those required by law.

Construction space measures and weight optimisation.

In addition to passenger crash safety, BMW Group engineers focused in particular on the integration of the required battery capacity without having to compromise on interior space. Many of the well-thought-out solutions are to be found in the details. For example, a modified tunnel housing in the undercarriage facilitates a larger tunnel volume without reducing the amount of space available to passengers. In another area, a slightly modified centre console angle provides more construction space resulting in increased battery capacity.

Moreover, in order to increase the car's range even further, it was necessary to keep the overall weight of the vehicle down to a minimum. The conversion concept sets certain limits for weight optimisation as the concept necessitates the incorporation of more parts, nevertheless the engineers working on the BMW ActiveE have managed to achieve the best possible reduction in weight. Throughout the entire development process, all new components were constantly optimised with regard to function and weight. Consequently, the BMW ActiveE offers the best possible solution in terms of

weight reduction within the framework of a conversion concept. However, weight-optimised electric mobility can only be demonstrated in the form of a purpose-built car such as the MCV, as it is ideally adapted to the conditions and requirements of electric mobility.

The design: clearly a BMW, clearly a very special concept.

The BMW ActiveE is based on the BMW compact-class model known for its outstanding agility and efficiency - the BMW 1 Series Coupe. With its powerful-looking proportions, the BMW ActiveE stands for compact agility, the convex-concave design vocabulary giving the vehicle an even more dynamic appearance. However, specific visual interior and exterior accents give indication of the exceptional character of the purely electrically powered BMW. Silver coloured, circuit-inspired graphic elements on an Electric Blue background run over the entire Alpine White car body. The intentional asymmetry of the graphic elements gives the vehicle a uniquely distinctive and agile appearance, the blue shadowing providing additional depth.

Furthermore, the flowing design of the scoop in the bonnet differentiates the exterior design of the BMW ActiveE from a conventional BMW 1 Series Coupe. It provides space for the energy storage unit located beneath it. The completely closed rear apron is a distinctive feature of the BMW ActiveE. As the ActiveE does not have a combustion engine, there is no need for tailpipes and an exhaust system. Where the tailpipes are normally located, the BMW ActiveE boasts a silver-blue accentuating trim in the completely closed rear apron that indicates that the vehicle is free of emissions. Further differentiating features are the logo "ActiveE" on the back of the car and the "eDrive" logos on the side panels as well as the high-quality chrome kidney grille.

In order to increase the vehicle's range even further, the BMW ActiveE rides on wheels of the latest generation of tyres with optimised rolling resistance. This results in a rolling resistance that is up to twenty percent lower compared to previous series production tyres. The wheels of the BMW ActiveE are complemented with by far the lightest 16-inch alloys by BMW and boast a double V-spoke design. A more sporty 17-inch aero wheel rim with a five-spoke design is also available.

In the interior the features of a BMW 1 Series Coupe are also combined with individual details that emphasise the unique BMW ActiveE concept. Blue contrasting seams accentuate the Dakota Leather seats in exclusive Pearl Grey. Dashboard and door linings are fitted with interior trim in Alpine White, which is available for the first time, and sport a high-quality “ActiveE” appliqué that transfers the exterior graphics into the interior of the car. The shift lever plaque in black and blue complements the overall graphic concept.

BMW eDrive - the BMW ActiveE's control display concept.

The instrument cluster und the control system iDrive were adapted to the electric drive concept of the BMW ActiveE and enhanced by specific display functions. Instead of indicating the engine speed, the instrument on the right of the cluster shows the amount of energy being taken from the battery or the current amount being supplied to it through recuperation. When the vehicle is at a standstill, the middle position of the needle indicates that the vehicle is ready to drive, as the BMW ActiveE has no engine sound to inform the driver whether or not the engine is ready to be started. If the vehicle is not ready to drive, the needle rests at the bottom left of the instrument. The “fuel gauge” below it indicates the battery charge level. Furthermore, the onboard computer provides additional vital information such as the remaining vehicle range, for example.

The eDrive display functions on the Central Information Display depict vehicle energy flows to make electric mobility even more perceptible and comprehensible. During the journey an active schematic representation of the vehicle informs the driver whether energy is currently being taken from the battery or being fed in to it via recuperation. Moreover, the driver can see the current charge state of the battery and also check whether the air conditioning or the heating system is working. This representation can, if required, also be shown as a split screen to allow the simultaneous display of additional infotainment contents or the route guidance of the navigation system. When the vehicle is at a standstill, it is also possible to see on the display whether the vehicle is currently being charged or whether the battery and interior are being conditioned. In addition, a special battery information menu provides information on the battery energy level as well as the current and remaining vehicle range. During charging it also indicates the remaining charging time.

Optimum comfort, optimum efficiency - the ECO PRO Mode.

If the driver wishes to increase the range of the BMW ActiveE even further, it is now possible to do this via the ECO PRO Mode. As soon as the driver activates the switch on the centre console, the vehicle's drive configuration and comfort functions are modified to facilitate an even more efficient driving style. Due to an adapted accelerator pedal characteristic, less power is demanded in the ECO PRO Mode than in the normal driving mode, but with the same pedal travel. Also, the heating and cooling characteristics of the heating and air conditioning systems have a flatter setting and therefore use less energy. The driver is also provided with tips on how to reduce energy consumption even further for the best possible motoring efficiency.

Emission-free, powerful and compact: the drive system of the BMW ActiveE.

The BMW ActiveE represents typical BMW driving pleasure in a new, emission-free form. The heart of the BMW ActiveE is the powerful electric synchronous motor, the components of which were designed with the requirements of the MCV in mind and which are now being tested in a pilot production series. Maximum power output of the electric drive system is 125 kW/170 bhp. Maximum torque of 250 Nm is - as is typical of electric vehicles - available from a standstill and, for the first time, remains utilisable across an exceptionally broad load range. As a result, the BMW ActiveE accelerates from 0 to 100 km/h in just 9 seconds, the 60 km mark being reached in less than 4.5 seconds. Top speed is electronically limited at around 145 km/h (90 mph).

The permanent-magnet hybrid synchronous motor and the power electronics of the BMW ActiveE were developed entirely in-house and are characterised in this combination by exceptional efficiency, optimised power development and a compact design. The innovative character of the electric drive system is reflected above all in the relation between engine output and space requirement. The entire power pack including power electronics and transmission with differential is integrated into the modified rear-axle support of the BMW ActiveE, and with a 125 kW output, still has a total weight that falls below 100 kilograms.

Drive and slow down with the accelerator pedal.

Not only does the spontaneous response enhance the intensive driving experience in the BMW ActiveE, but also the possibility to slow down using the accelerator pedal. When the driver takes his or her foot off the pedal, the electric motor assumes the function of a generator that feeds the electricity gained from kinetic energy back into the vehicle battery. At the same time, braking torque is created, which effectively slows the vehicle down. In this way, the accelerator pedal becomes a “drive pedal”. In urban traffic around 75 percent of all deceleration processes can be performed without using the brake pedal. Intensive use of this so-called recuperation of energy via the motor also results in a range increase of up to 20 percent. Only when the driver wishes to slow the vehicle down faster by stepping on the brake pedal does the conventional braking system of the BMW ActiveE additionally intervene.

Gliding - “coasting” along the road.

Unlike the MINI E, the BMW ActiveE features a distinctive “intermediate position” of the accelerator pedal, allowing the vehicle to “glide”. As a result, the vehicle does not immediately recuperate when the driver decelerates, but “de-clutches” using the electric motor’s zero momentum control, thereby utilising its own kinetic energy to move forward. The BMW ActiveE then “glides” along the road without using energy. In addition to foresighted driving, gliding offers a most convenient way of increasing the vehicle’s range. A further result of the modification of the accelerator pedal characteristic curve is a significantly more precise pedal response and there are virtually no noticeable load changes.

Intelligent vehicle dynamics through Stability Management for Regeneration.

When the driver releases the accelerator pedal in order to slow down, the recuperative brake torque only has an effect on the rear wheels. For this reason the BMW ActiveE features an adapted drive-active vehicle dynamics interface, “Stability Management for Regeneration”, in order to also ensure adequate vehicle stability during recuperation. The familiar traction control system ASC and Dynamic Stability Control (DSC) have been adapted to the specific characteristics of the electric drive train. Based on various parameters, Stability Management for Regeneration adapts the recuperation

level to each driving situation, combining the highest level of recuperation with best possible vehicle stability when decelerating in any situation. Should a situation arise that is critical for vehicle stability when using recuperative or hydraulic brakes, the optimised DSC function ensures constant vehicle stability by means of targeted intervention into the braking system and engine management. Furthermore, the ASC system ensures that the rear wheels are able to transfer the high torque of the electric drive into maximum propulsion when starting off.

Well-adjusted: the lithium-ion storage unit with its own liquid cooling system.

Specially developed lithium-ion storage cells ensure the energy supply of the drive system and all further functions of the BMW ActiveE. These high-voltage battery units excel above all through their high storage capacity. The BMW ActiveE features storage cells, which are being used for the first time and were jointly developed by the BMW Group and its associate partner SB LiMotive exclusively for automotive use. The technological competence of the cooperation partner SB LiMotive ensures that the high storage capacity and cycle stability of the lithium-ion batteries are also guaranteed under the exceptional conditions of automotive use and the associated demands with regard to lifespan, operational stability and safety.

With the BMW ActiveE developers are testing the storage cells and the storage electronics, which are to be installed later in the MCV. Combined into modules of six, eight or ten storage cells, they fit literally perfectly into the available construction space in the BMW ActiveE. Construction space, which is reserved in vehicles featuring a combustion engine for components the electrically powered BMW 1 Series Coupe does not require, is intelligently utilised. The large battery unit of the BMW ActiveE takes up the space in the lower area of the vehicle normally intended for the conventional drive train. In order to accommodate additional storage cells, the space at the rear that has become available through the omission of a fuel tank is utilised. Further lithium-ion cells are located at the front end in front of the cowl.

The BMW ActiveE's three large storage modules are each protected by a specially constructed steel-plate battery housing with integrated liquid cooling system. The cooling system constantly maintains the ideal operating

temperature of the energy storage units, thereby significantly contributing towards an increase in the service capability and lifespan of the battery cells. The air conditioning/heating system tempers the liquid running through the storage unit housing via a heat exchanger. If necessary, the liquid can also be heated in order to bring the energy storage units up to the ideal temperature of approximately 20° Celsius even during the winter.

Thanks to these measures, the BMW ActiveE achieves a range of around 160 kilometres (100 miles) with a full battery charge and auxiliary consumers switched on. According to the American consumption cycle FTP72, the vehicle has a range of up to 240 kilometres (150 miles). Intelligent battery management especially developed for the BMW ActiveE ensures that this range can be achieved as far as possible independently of external climatic conditions.

Fast and flexible retrieval of fresh energy.

The consistent development of electrically driven series production vehicles also encompasses innovative solutions for flexible, convenient and user-friendly charging of the vehicle's energy storage systems. The lithium-ion battery units featured in the BMW ActiveE can be supplied with fresh energy from the most diverse external power sources. The vehicle is not dependent on a specific battery charging terminal and, depending on availability, electricity of varying current strength can be fed into the storage unit. The respective transformation is guaranteed by the integrated, highly efficient comfort battery charger. As a result the driver has a significantly higher degree of flexibility.

In addition to using the so-called wallbox, a 32-ampere power supply terminal, installed at the user's home and optimised to obtain the shortest possible charging times, the driver can also connect the vehicle to a conventional power socket or a publicly accessible charging station. The standardised US plug SAE1772 on the vehicle constantly ensures unvarying access to the charging point and special battery charger leads with corresponding standardised adapters ensure trouble-free connection in every country in which the system is available.

The energy storage units can be fully charged within four to five hours using the wallbox at 32 amperes. A range of around 40 kilometres is possible after

just a one-hour charge at the wallbox. Using a conventional socket in Europe, the energy storage unit is fully charged over night.

The power electronics - greater efficiency, enhanced development of power.

The BMW ActiveE's power electronics developed by BMW regulate the required strength and voltage of the supply of electricity to the electric motor. They ensure full utilisation of the drive system's full dynamic potential. Only the correct power supply to the aggregate will release the high output and guarantee homogeneous development of power. As in the future MCV, the BMW ActiveE's power electronics are located above the rear axle on the electric motor, forming a complete unit together with the aggregate.

Apart from controlling the electric motor, the power electronics also ensure the power supply to the onboard electrical systems. With the aid of a voltage transformer and incorporating intelligent battery management, they ensure the reliable supply of electricity to all vehicle functions including the comfort and infotainment features. Central control functions, which are integrated into both the power electronics as well as the energy storage system, permanently monitor all components. The driver is immediately informed of any possible malfunctions, in the event of which the system is automatically secured and switched off if necessary.

Everything from a single source - BMW Group drive technology competence.

The performance of the drive system in the BMW ActiveE is typical of a BMW. The exceptional dynamics, agility and efficiency are the result of intensive development efforts. With the exception of the storage cell, BMW Group engineers develop everything that constitutes an electric vehicle – the energy storage module and its wiring, the electric motor, the power electronics and the transmission. After all, the BMW Group wishes to continue upholding its claim to producing the world's best drive systems - drive systems that stand out from the competition through efficiency, performance and running smoothness, even when electric power and not fuel is being transformed into movement. The harmonious interaction between drive train and power electronics, road performance and range demonstrate the BMW Group's high degree of competence in this field.

Superior and comfortable - typical BMW, even with regard to handling.

On the road, the BMW ActiveE offers the typical BMW driving experience. Weighing a total of approximately 1,800 kilograms, the coherent overall concept comprising drive train, handling characteristics and package guarantee the familiar supreme and agile road performance of a BMW 1 Series Coupe. The positioning of the energy storage units results in a beneficial lowering of the vehicle's centre of gravity. Moreover, the flexible distribution of the storage units facilitates the well-balanced 50:50 axle load distribution so typical of BMW automobiles. Thanks to the dynamic wheel load shift, more weight bears down on the drive wheels, facilitating enhanced traction and power transfer of the high torque.

In addition to the adaptation of the rear axle to accommodate the electric drive, the BMW ActiveE's suspension-related modifications are mainly restricted to components. For example, steering characteristics, springs and dampers are adapted to the higher weight in comparison to the series production version in order to reproduce typical BMW 1 Series handling in combination with the electric drive train. The suspension setting was chosen with a special focus on comfortable and superior driving in cities and the urban environment for which the BMW ActiveE is predominantly designed.

BMW ConnectedDrive remote functions for the BMW ActiveE.

With BMW MyRemote, BMW enables the user to access the extensive range of BMW ConnectedDrive functions via an app for the Apple iPhone (from 3G) and the iPad. The user has at his or her disposal all BMW ConnectedDrive remote functions using the CE device such as locking and unlocking the doors, the activation of the horn or headlamp flasher for locating the vehicle within sighting or hearing range, the CarFinder for locating the car within a radius of up to 1,000 metres as well as the Google Local Search function.

In addition, new remote functions developed especially for the BMW ActiveE for battery charge control and vehicle preconditioning have been incorporated into the range of functions. Via the customer's Connected Drive Account the iPhone application establishes a unique connection with the vehicle and automatically displays the additional range of functions as soon as the Connected Drive Account has been identified. This kind of connection

between remote controlled services and electric mobility is unique. However, prerequisite for all remote functions is that both the vehicle and the user are receiving a signal. Of course, the driver has access to the BMW ConnectedDrive functions without using an iPhone. This serves solely as a remote control and information device.

eCommand: charge level, range and preconditioning at a glance.

The specific electric car functions - eCommand in short - comprise both charge control and control of the preconditioning of the energy storage unit and with it the air conditioning of the interior. The charge control function allows the user to start and finish the charging process as well as the setting of the charge starting time via the charge timer inside the vehicle. Via charge control the user can view the charge level at any time and see whether the vehicle is currently being charged. Users are informed of the battery charge level (SoC - State of Charge), the vehicle's current travel range with a full battery charge and the time remaining until the batteries are fully charged. A further display function informs users how far away they are from work or the destination that has been predefined as their home, so that they are able to make a best possible estimation of the distance they are still able to travel. Moreover, the app informs users where the nearest battery charging stations are, offering at the same time the possibility to add these directly to the navigation system's routing function as an interim destination.

Preconditioning for enhanced vehicle range.

Unlike the MINI E, the BMW ActiveE offers the user for the first time the possibility to cool or heat both the energy storage unit and the car interior using intelligent preconditioning, thus bringing them up to the ideal operating temperature even before setting off. A preconditioned vehicle offers two advantages: firstly, the ideal operating temperature of the energy storage unit guarantees highest possible power output and hence a longer range. Secondly, the interior is already adjusted to a pleasant temperature prior to starting a journey - both in the summer and the winter. Intelligent preconditioning of the BMW ActiveE automatically determines according to the ambient temperature to what extent the vehicle and the battery should be pre-cooled or heated.

Preconditioning can be activated directly or the user can determine via the timer when preconditioning should start. For instance, he or she can ensure that the vehicle is pre-cooled or heated in the mornings before they use the car. However, it is only possible to precondition the car if it is connected to a charging terminal via a battery charging lead. This ensures that the vehicle's range is not shortened due to the comfort function. On the contrary, it actually increases it. Due to the heating and cooling process while the vehicle is connected to the power supply, the energy required for this is no longer drawn from the battery during the journey. Charging and preconditioning functions are, of course, also directly accessible and controllable from inside the vehicle.

BMW ConnectedDrive assists in assessing field test results.

Access to the vehicle via BMW ConnectedDrive remote functions is also BMW's feedback channel for the data recorded during field tests. When the charging process has finished and/or when network connectivity is established, the vehicle sends the vehicle data history recorded during the previous five hours to the BMW Backend for further analysing. Here, only development-related data such as distance travelled, maximum vehicle ranges as well as charging times and behaviour is collected, transferred and allocated to each respective vehicle. The objective is a comprehensive vehicle-specific documentation in order to obtain knowledge that can be used for further development. Anonymity of recorded data is, of course, guaranteed at all times.



3.5 A new dimension in driving pleasure and efficiency: The new BMW X1 xDrive28i with BMW TwinPower Turbo.

With its powerful, sporty and elegant styling, supreme agility, luxurious functionality and innovative equipment features, the BMW X1 is a trailblazer in the premium compact segment in terms of driving pleasure. Yet again premium carmaker BMW has successfully transplanted the BMW X model concept to a new vehicle segment to create a unique product. Now the BMW X1 is breaking new ground, this time in terms of the BMW EfficientDynamics programme. The new BMW X1 xDrive28i is the brand's first four-cylinder petrol model with BMW TwinPower Turbo technology to comprise High Precision Injection direct petrol injection, a charge system based on the Twin Scroll principle, double-VANOS variable camshaft timing and VALVETRONIC variable valve control.

BMW has timed the introduction of this technology package in the new BMW X1 xDrive28i to coincide with the launch of a new generation of BMW 2.0-litre petrol engines. The new 180 kW/245 bhp power unit combines a power and torque upgrade over the previous engine with substantially reduced fuel consumption and emissions. This twofold improvement is reflected in some impressive performance specifications. The 0 to 100 km/h sprint time is 6.1 seconds (automatic: 6.5 seconds), an improvement of 0.7 seconds (automatic: 0.3 seconds) over the previous model, which was only available as an automatic. At the same time, average fuel consumption in the EU test cycle has been cut by 16 per cent to 7.9 litres/100 km, with CO₂ emissions of 183 grams per kilometre.

The new BMW X1 xDrive28i comes as standard with a six-speed manual transmission. The standard-fitted BMW EfficientDynamics technology includes - amongst other features - Brake Energy Regeneration, Gear Shift Indicator, the Auto Start-Stop function and on-demand control of auxiliary units. An optional eight-speed automatic version is also available. Thanks to its exceptionally high internal efficiency, models with this transmission offer identical fuel consumption and emissions performance to those with the manual version.

The engine: new benchmark in efficiency and dynamism.

BMW X models offer their own distinctive interpretation of typical BMW driving pleasure. The BMW X1 xDrive28i combines this special driving experience with efficiency that is unrivalled in this power class. As a result, this new BMW X1 model offers sporty power delivery of a kind that was previously confined to six-cylinder engines but combines it with outstanding fuel consumption and emissions performance.

It's all down to the latest-generation 2.0-litre four-cylinder petrol engine, which sets new standards with its various innovative technologies.

The BMW X1 xDrive28i's power unit achieves the goals of BMW EfficientDynamics in impressive style: it continuously raises the bar on driving pleasure, while at the same time reducing fuel consumption and emissions. With a displacement of 1,997 cc and world-exclusive BMW TwinPower Turbo technology, incorporating Twin Scroll turbocharging, High Precision Injection, double-VANOS and VALVETRONIC, it delivers a maximum output of 180 kW/245 hp at 5,000 rpm - 55 kW more than the previous top-powered BMW 2.0-litre petrol engine.

Debut:

BMW TwinPower Turbo now featured in a four-cylinder engine.

BMW TwinPower Turbo technology gives the new four-cylinder engine the sort of power that naturally aspirated engines can only achieve through more cylinders and substantially larger displacement. The four-cylinder engine with its all-aluminium crankcase, including a motor sport-derived bedplate, is lighter and more compact than a six-cylinder engine of equivalent power. This has direct benefits for the efficiency of the BMW X1 xDrive28i and also, thanks to the reduced front axle load, for agility.

The new engine also offers more torque than the previous naturally aspirated engines. Rated torque of 350 Nm, which comes on stream at just 1,250 rpm, ensures very good low-end response. The vigorous power delivery, from only slightly above idling, is a very seductive feature of this new engine, and the power climbs steadily all the way to the upper load range. The new BMW X1 xDrive28i has a 0 to 100 km/h sprint time of 6.1 seconds (6.5 seconds with automatic transmission). The new BMW X1 xDrive28i hits a top speed of 240 km/h.

The turbocharger is a Twin Scroll system. The exhaust streams leaving the two pairs of cylinders are kept completely separate as they flow through the exhaust manifold and the turbocharger, taking a spiral path to the turbine wheel. This configuration results in very low exhaust backpressure at low engine rpm, and allows the energy of the exhaust gas pulses to be optimally managed and translated into powerful rotation of the turbine blades, without a response delay. The result is instant throttle reaction and typical BMW fast-revving performance.

More dynamic performance plus reduced emissions, thanks to VALVETRONIC, double-VANOS and direct injection.

The fully cylinder head-integrated VALVETRONIC variable valve control system, and the double-VANOS variable intake and exhaust camshaft timing, have a further positive impact on power development. The BMW X1 xDrive28i engine features assembled intake and exhaust camshafts and a latest-generation VALVETRONIC system which is even faster-acting thanks to an optimised stepper motor with integrated sensor.

The patented BMW VALVETRONIC system with infinitely variable intake valve lift control dispenses with the throttle valve system typical of earlier engine generations. Instead, combustion air mass is controlled inside the engine, resulting in much faster response. Pumping losses are kept to a minimum, making the engine more efficient.

The new engine's unusually high efficiency for a turbocharged unit is also down to the High Precision Injection petrol direct-injection system. Centrally positioned between the valves, solenoid injectors with a maximum injection pressure of 200 bar precisely control the supply of fuel. The fuel is injected very close to the spark plug, resulting in clean and homogeneous combustion. The cooling effect of the injected fuel also results in a higher compression ratio than on turbocharged, naturally aspirated engines. This results in further efficiency improvements.

The efficiency enhancement issue continues with a computer-controlled oil pump and an on-demand electric coolant pump. Also, the new BMW X1 xDrive28i is specified as standard with a six-speed manual transmission with Auto Start-Stop function. This system automatically switches off the engine when the vehicle stops at crossroads or is sitting in

stationary traffic in order to prevent unnecessary idling and wasteful use of fuel.

The new engine technology and extensive, standard-fitted BMW EfficientDynamics features achieve an exceptionally good balance between performance and fuel consumption. The new BMW X1 xDrive28i has average fuel consumption in the EU test cycle of 7.9 litres /100 km, a 16 percent improvement over the previous model. CO₂ emissions are rated at 183 grams per km.

Features based on award winning straight-six engine result in new efficiency benchmark.

A number of key design features of the new engine are based on the latest-generation BMW straight-six engine with BMW TwinPower Turbo technology. This 225 kW/306 bhp unit, fitted in models such as the new BMW X3 xDrive35i, is internationally regarded as a benchmark in dynamic performance and impressive efficiency.

Amongst other tributes, these special qualities earned the six-cylinder engine the Engine of the Year Award 2010. No other 3.0-litre engine offers anything like such a good balance between driving pleasure and fuel economy. And now, the engine of the new BMW X1 xDrive28i has achieved a similar benchmark position in the 2.0-litre engine class.

Optional eight-speed automatic transmission - greater driving comfort with no increase in fuel consumption over manual transmission.

The BMW X1 xDrive28i is equipped as standard with a six-speed manual transmission. Optionally, the power can be managed by an eight-speed automatic transmission. Innovative gear train design makes this transmission comparable in size and weight to the previous six-speed automatic transmissions. The additional ratios provide an appreciable improvement in driving comfort, sporty performance and efficiency. Also optional are a sports leather steering wheel and an M leather steering wheel, which both come with shift paddles which allow the driver to operate the transmission manually yet still keep both hands on the wheel. In typical M style, the right-hand paddle is used for changing up and the left-hand paddle for changing down.

The BMW X1: best-in-segment agility, thanks to BMW xDrive.

A variable drive power split between the front and rear wheels, courtesy of the new BMW X1 xDrive28i's standard-fitted BMW xDrive four-wheel-drive system, results in improved agility - and confident traction away from non-surfaced roads. Via a transfer case with electronically controlled multi-plate clutch, xDrive finely controls the drive power in line with changing conditions, always sending the right amount of power to the axle whose wheels have the best grip.

The permanent four-wheel-drive system is integrated with Dynamic Stability Control (DSC) and with the engine management. Wheel slip is detected at the very first signs by sensors at the wheels. The system then responds with split-second speed by varying the drive split to efficiently correct under- and oversteer at the earliest possible stage. During cornering, more drive power is sent to the rear axle to improve manoeuvrability and prevent understeer. The DSC system includes integral ABS, Dynamic Brake Control (DBC), Cornering Brake Control (CBC) and also Dynamic Traction Control (DTC). DTC raises the stability control response thresholds, making it easier to move off on snow or sand. Amongst other features, the DSC system also includes a Brake Drying function - for wet-weather driving - and Fading Compensation.

Either as a stand-alone option, or in conjunction with the likewise optional sports suspension, Performance Control featured in the BMW X1 xDrive28i applies precisely controlled brake intervention, with torque compensation, as an efficient corrective measure at the very first signs of understeer on slippery surfaces and during very dynamic cornering.

Maximum agility and all-round safety through state-of-the-art suspension technology and robust body structure.

The agile, precise, confident handling of the BMW X1 xDrive28i is a direct result of its high-performance suspension technology and a very robust body structure. The double-joint spring-strut thrust bar axle at the front and the five-arm rear axle provide an optimal combination of ride quality and sporty handling. The hydraulic rack-and-pinion steering system comes with precise power assistance.

In part, the BMW X1 owes its extreme torsional rigidity to intelligent use of high-tensile and ultra-high-tensile steels. Material choices, and the positioning

and geometry of struts, braces and other supporting members, are designed for maximum crashworthiness, while also optimising weight and agility. Front and side airbags along with side curtain head airbags for the front and rear rows of seats are standard specification. Three-point inertia-reel belts are standard on all seats, with belt force limiters and belt latch tensioners at the front.

The BMW X1's standard dual round headlights also feature daytime running lights. The optional bi-xenon headlights incorporate sidelights and daytime running lights. They are combined at the rear with LED fibre optic technology, which makes the L-shape of the taillight clusters stand out even more strikingly. Further options for the BMW X1 include High-Beam Assistant, a rain sensor and Adaptive Headlights, which swivel in line with the steering angle.

Confident styling, state-of-the-art interior functionality.

The BMW X1 delivers unfiltered driving pleasure, all-round sporty performance and extreme agility both in urban traffic and out of town. The styling is marked by confident elegance, upscale functionality and trendsetting modernity. The unique vehicle concept combines typical BMW driving pleasure with a level of interior adaptability which is quite unusual for the compact segment and will appeal to customers with an active and varied lifestyle. Both the versatility and the sporty, agile driving qualities are closely echoed in the body styling, with its seamless transitions between front, sides and rear, and well-defined lines which create fluent connections between the different elements of the body.

The five-door X1 measures 4.45 metres in length, but despite the smaller dimensions compared with the BMW X6, BMW X5 and BMW X3, it is clearly identifiable as a BMW X model from every angle. Square-contoured wheel arches, increased ground clearance, narrow guard strips along the lower edges of the body and the upright BMW kidney grille all point to robust design. The long bonnet, short front overhang, a long wheelbase of 2.76 metres and the steeply sloping rear windscreen accentuate the sense of length and confirm the sporty credentials of the BMW X1.

The higher seating position and driver-centric cockpit design add to the emotional driving experience. This layout also provides convenient entry and

gives the driver a commanding view of the road. High-quality materials and striking surface textures, plus iDrive for models equipped with an optional navigation system, all reflect the premium-class quality of the BMW X1. Expressive graphic elements, extensive trim panelling and dynamic styling create a sporty, youthful aura in the BMW X1. Horizontal lines give the instrument panel a layered look, which continues into the door trim, accentuating the width of the instrument panel as well as the general sense of spaciousness. The centre control styling creates a clear demarcation between the driver's and front passenger's areas.

The rear offers three full-size seats. One or more sections of the 40:20:40 split-folding rear seatback can be lowered to increase luggage capacity from 420 right up to 1,350 litres. At detail level, functionality is further enhanced by a wide range of trays, cup holders and stowage compartments.

Practical, innovative, high-quality optional equipment.

The everyday practicality, driving pleasure and comfortable touring qualities which are hallmarks of the BMW X1 can be expanded even further by a range of top-quality optional equipment features. Roof rails, a storage compartment package and a tow bar with removable ball head provide additional transport capacity. Interior customisation options include sports seats, seat heating, an interior lights package and the large panorama glass roof. The powerful and efficient automatic climate control system offers a choice of five different climate control modes and maintains a pleasant temperature inside the vehicle at all times of year and in all weather conditions. The standard-fitted audio system includes six speakers, a CD drive and an AUX-IN connection for external audio devices. Optionally, MP3 players and other data or music storage devices can be integrated in the in-car entertainment system via a USB interface.

BMW X1 models equipped with the Business or Professional navigation system also feature the new-generation iDrive operating system with centre console-mounted Controller and direct selection buttons, functional bookmark buttons below the climate control panel and a 6.5- or 8.8-inch Control Display. A wide range of driver assistance systems and mobility services from BMW ConnectedDrive are also available. To supplement the optional sensor-equipped Park Distance Control system, a further

manoeuvring aid can be specified - the optional rear-view camera. BMW ConnectedDrive also offers in-car Internet access and innovative solutions for the integration of smartphones and external music players.

The optional apps from BMW ConnectedDrive offer an attractive extension of the range of infotainment features in the BMW X1 as well. With this special option, Apple iPhone users can download free software from the Apple App Store that allows them to select Internet radio stations from around the world using the iDrive system or to have the latest posts from their personal Facebook or Twitter account shown on the car's Control Display. In addition, the online services allow standardised messages to be sent from the car. Additional apps and functions are set to follow in the future.

Debut: M Sport Package for the BMW X1.

Simultaneously with the market launch of the new BMW X1 xDrive28i in spring 2011, an M Sport Package will make its debut in this series. It will be available for all engine versions of the compact BMW X model and comprises suspension, exterior and interior components specially developed for this model. These features further enhance the vehicle's sporty and agile driving qualities and give them a distinctive visual dimension as well. They include sports suspension calibration and 17-inch double-spoke M alloy wheels for even sharper driving dynamics. Alternatively, the M Sport Package can be supplied with 18-inch double-spoke M alloy wheels.

The M Sport Package for the BMW X1 also features an M Aerodynamics package, doorsills with the "M" logo and BMW Individual High Gloss Shadow Line trim for the side window surrounds and roof rails. Also available in conjunction with the M Sport Package are the metallic exterior paint colours Alpine White, Le Mans Blue, Sapphire Black, Space Grey, Vermillion Red and Mineral White.

Sports seats upholstered in cloth/Alcantara, an M leather-trimmed steering wheel with multifunction buttons and an M footrest for the driver add to the driving pleasure when the BMW X1 is equipped with the M Sport Package. The high-end sporty theme is capped off by a BMW Individual roof liner in Anthracite, dark cross-brushed aluminium interior trim, the M gearshift lever for vehicles with six-speed manual transmission and a leather handbrake lever gaiter.



3.6 Getting ahead with intelligent four-wheel drive: BMW xDrive on the road to success - now featured in 47 BMW models.

The right drive system guarantees driving pleasure in any situation. Intelligent four-wheel drive technology BMW xDrive, which permanently transfers power to where it is needed, provides the ideal preconditions. BMW xDrive ensures supreme traction, maximum safety, best possible handling and optimum delivery of power in all kinds of weather and in all road conditions. Thanks to the conceptual advantages and the ongoing development of the system, the world's most successful premium carmaker has also managed to seize an excellent position on the market for all-terrain vehicles. Today, every fourth BMW sold worldwide is equipped with BMW xDrive.

Above all, it is the sustained success of BMW X models that is significantly responsible for this development. Moreover, the number of four-wheel drive vehicles available for other series is also constantly on the increase. The exceptional diversity ranges from the BMW X models, the BMW 3 and 5 Series to the luxury-class sedans of the 7 Series. Also, in the spring of 2011, the choice of four-wheel drive vehicles available for the BMW model range is being extended even further. This will mean that BMW now offers 47 models featuring xDrive technology to ensure variable distribution of torque to the front and rear axles.

Over 25 years of BMW four-wheel drive technology for enhanced traction, stability and dynamics.

Four-wheel drive was first offered for a BMW 3 Series model in 1985 as an addition to the model range and alternative to the characteristic BMW rear-wheel drive technology. At that particular point in time, power transfer to both axles was not solely designed to optimise traction on non-surfaced roads and in adverse weather conditions, but also for better driving dynamics in bends. The current version of the BMW xDrive four-wheel drive system lives up more than ever to this expectation. Through the linking of the four-wheel drive system with Integrated Chassis Management (ICM), each driving situation is identified and assessed in order to implement prompt and adequate corrective intervention. This can be effected solely via xDrive or in combination with Dynamic Stability Control (DSC) or Performance Control.

Spontaneous and precise distribution of drive force is varied in such a way as to ensure typical BMW handling even in fast and dynamic bends.

Unlike other car manufacturers who utilise four-wheel drive technology mainly to compensate for the lack of traction offered by front-wheel driven vehicles, BMW favours typical rear-wheel drive characteristics for the xDrive system's setting. On BMW models featuring a four-wheel drive system, most of the drive torque delivered even in normal driving situations is transferred to the rear wheels. This is where it is optimally transformed into vehicle dynamics as is the case with the brand's one-axle drive automobiles. Thus, typical BMW steering precision also remains virtually free from torque steer on the four-wheel drive models. In fact, driving around bends is optimised even further. For the benefit of exceptionally precise steering and a high degree of tracking stability, new-generation xDrive directs more motive power to the rear axle as soon as the vehicle enters the bend. In this way, the characteristic driving pleasure is enhanced even further.

Four-wheel drive technology by BMW: consistent advancement, dynamic growth.

Since debuting in 1985, four-wheel drive technology by BMW has developed from an option initially restricted to selected models into a driving force for the consistently pursued extension of the model range. When first introduced to the market in the second-generation BMW 3 Series, four-wheel drive was offered exclusively in combination with a 2.5-litre, straight-six petrol engine. The BMW 325iX was initially available as a sedan and then, from 1985 onwards, as a touring model. Today, the BMW 3 Series offers a choice of three six-cylinder petrol engines as well as a four-cylinder and a six-cylinder diesel power unit featuring xDrive. In addition to the sedan and the touring model, the BMW 3 Series Coupe is also available with xDrive.

The technological advancement of the BMW four-wheel drive system has taken place simultaneously with the extension of the model range. The permanent four-wheel drive concept used in the BMW 325iX launched in 1985 featured viscous locks in the transfer gearbox and rear axle differential, which provided in an almost rigid interconnection an on-demand optimisation of traction and directional stability as a function of the speed differential between front and rear wheels. The arrival of four-wheel drive technology in

the BMW 5 Series in 1991 also marked the debut of an electronic control system for distribution of drive force. The newly conceived system featured an automatically controllable and infinitely adjustable multi-disc clutch that ensured on-demand variation of torque distribution between the front and rear wheels. Initially, a hydraulically controlled multi-disc clutch was used on the rear axle, but later replaced by electronically controlled brake intervention. When analysing the current driving situation, the four-wheel drive system's control unit monitors the wheel speed signals of the ABS, speed and throttle position of the engine as well as brake status.

Right from the very beginning, the four-wheel drive system featured in the BMW 525ix, which was available both for the sedan and the touring version, proved to be one of the most superior concepts in its competitive environment. The electronic control function permitted exceptionally fast and precise response, resulting in neutral and safe handling in adverse conditions such as wet or snow-covered roads.

The introduction of the Sports Activity Vehicle (SAV) segment opened entirely new perspectives for the four-wheel drive concept. In 1999, BMW caused quite a sensation with this innovative vehicle concept. The BMW X5 offered fascinating driving dynamics that were unique in the all-terrain vehicle segment, the characteristics of the BMW four-wheel drive concept also focusing on this principle. In normal driving conditions, drive force was distributed at a ratio of 38:62 percent to the front and rear wheels via a planetary gear. Thanks to the standard equipment features DSC (Dynamic Stability Control), ADB-X (Automatic Differential Brake) and HDC (Hill Descent Control), the BMW X5 was equipped to master both sporty driving as well as the demands of off-road driving.

Leading the competition with innovative vehicle concepts and BMW xDrive.

With the establishment of the SAV concept in a further segment in 2004, BMW underlined yet again its role as a trailblazer. With more compact dimensions in comparison to the BMW X5 and even better agility, the BMW X3 also proved to be an absolutely unique vehicle. And for many years it was to remain the only premium vehicle in its class.

BMW managed to get ahead of the competition in the field of four-wheel drive technology as well. The newly developed four-wheel drive concept xDrive, which was also introduced to the BMW X5 simultaneously with the launch of the BMW X3, featured an exceptionally fast-operating, electronically controlled multi-disc clutch in the transfer gearbox and, in conjunction with the Dynamic Stability Control function (DSC), was also able to offer unbeatably favourable preconditions for variable and consistent on-demand distribution of drive force. For the very first time, it was possible when analysing the driving situation incorporate not only the wheel speed, but also the data provided by the DSC function pertaining to steering angle, accelerator pedal position and lateral acceleration, including the driving condition calculated from it. This resulted in the laying of the foundation for the status of xDrive as the world's only intelligent four-wheel drive technology, a status that has remained valid until this very day. Unlike conventional four-wheel drive systems, which react to wheelspin only when it happens, xDrive is able to identify a tendency to oversteer or understeer well beforehand and counteract this well in advance by modifying the distribution of drive torque.

Prior to being replaced by its successor in 2010, more than 600,000 units of first-generation BMW X3 were sold worldwide. Shortly before that, sales of the BMW X5, the second generation of which has been produced since 2006, had already exceeded the 1 million mark.

Supreme traction, superior dynamics: BMW xDrive with a revised setting and Dynamic Performance Control.

Meanwhile, both the outstanding potential of BMW X models and xDrive technology have brought about even further innovations. 2008 saw the arrival of the BMW X6, which was and still remains the world's first and only Sports Activity Coupe. And BMW xDrive is also featured in the BMW ActiveHybrid X6. Since 2009, the BMW X1 has been the only vehicle of its kind in the premium compact segment.

Like on the BMW X3, it is also possible on the BMW X1 to combine xDrive with the Performance Control function, which enhances the agile handling characteristics of both models even further. Targeted braking of the rear wheel nearest to the inside of the bend coupled with an increase in drive power ensures particularly spontaneous and precise steering behaviour. The

X6, which features Dynamic Performance Control as standard, offers even more variable distribution of drive force. Combined with xDrive, this system guarantees typical BMW driving pleasure when driving around bends. Thanks to the variable distribution of drive force between the inner and outer rear wheels in a bend, Dynamic Performance Control offers unmatched agility and stability even during sudden load changes or deceleration.

The interaction between xDrive and Dynamic Performance Control can be best experienced in the models BMW X5 M and BMW X6 M. The first four-wheel drive high-performance sports cars from the BMW M GmbH are powered by an eight-cylinder power unit with M TwinPower technology, delivering 408 kW/555 bhp.

Simultaneously with the triumphant success of the BMW X models, the range of four-wheel drive variants from other series has been consistently extended. The BMW 3 Series alone includes 15 models with four-wheel drive. In the BMW 5 Series Gran Turismo, xDrive is available for four different engine variants. The choice of four-wheel drive versions of the new BMW 5 Series Sedan is to be increased to three in the spring of 2011. The BMW 550i xDrive with V8 engine will be followed by the six-cylinder versions BMW 535i xDrive and BMW 530d xDrive. The launch of the BMW 530d xDrive Touring will take place simultaneously.

Thanks to its enhanced setting, which boosts agility and precision in bends, xDrive now offers better prerequisites than ever before for the ultimate driving experience and an ideal combination of dynamism and comfort. It was only logical that four-wheel drive should eventually also find its way into the BMW 7 Series.

With the BMW 750i xDrive, the BMW 750Li xDrive and the BMW 740d xDrive, there is a choice of three variants of the luxury sedan at the top of the model portfolio.



3.7 Out of a passion for supreme performance and exclusivity: Current innovations from the BMW M GmbH product range.

An extended model range and newly developed products for additional series ensure attractive diversity within the current BMW M GmbH product range. Besides the BMW M Coupe - a recent addition to the model portfolio - the products from the BMW Individual line being presented at the 2011 Geneva Motor Show will include, among others, the M Sport Package for the BMW X1 as well as options developed exclusively for the new BMW 6 Series Convertible. With products spanning all major vehicle segments, the BMW M GmbH is oriented more than ever towards the needs of drivers who wish to experience supreme performance in everyday road traffic and express their own personal style through first-class individualisation.

The continuing enthusiasm for high-performance vehicles and exclusive optional equipment was also responsible in 2010 for the successful business development of the BMW M GmbH on the international automotive market. The launch of the BMW X5 M and BMW X6 M models, with which the BMW M GmbH is now for the first time also represented in the all-terrain segment, made a decisive contribution towards achieving this result. The advancement into a further vehicle class will provide the basis for additional growth in 2011. As the compact segment's first High Performance Coupe, the BMW 1 Series Coupe impressively enters into the world of high-performance sports cars boasting the M logo.

Moreover, in the spring of 2011, the BMW M GmbH business division will be complemented by the development, production and sale of security and emergency vehicles based on current BMW models. With these additional fields of expertise, the BMW M GmbH will be able to utilise and increase further its more than 30 years of experience in areas ranging from customer-oriented vehicle individualisation to the production of one-offs. Like the high-performance sports cars from the BMW M GmbH, the security and emergency vehicles are being produced within the framework of an integrated development process oriented towards specific customer needs to maximise

their suitability for everyday use and bring them into line with the outstanding quality and safety standards of the premium carmaker BMW.

Premiere: M Sport Package for the BMW X1.

In the spring of 2011, the BMW M GmbH will extend its range of specific options for models in the BMW X family. For the first time, an M Sport Package will be available for the BMW X1. The components developed for each specific model for suspension, exterior and interior contribute towards the further optimisation of the BMW X model's sporty and agile handling and, over and above that, express this visually through a markedly distinctive appearance. A sporty suspension setting and 17-inch M light alloys boasting a double-spoke design greatly accentuate the BMW X1's potential in terms of driving dynamics. 18-inch light alloys with a double-spoke design are also available as an additional option in conjunction with the M Sport Package.

The M Sport Package for the BMW X1 also features an M Aerodynamics package, doorsills with the "M" logo and BMW Individual High Gloss Shadow Line trim for the side window surrounds and roof rails. Also available in conjunction with the M Sport Package are the metallic exterior paint colours Alpine White, the metallic colour Sapphire Black, Space Grey, Vermillion Red and Mineral White as well as Le Mans Blue, a colour exclusive to BMW M.

Sports seats upholstered in cloth/Alcantara, an M leather-trimmed steering wheel with multifunction buttons and an M footrest for the driver add to the driving pleasure when the BMW X1 is equipped with the M Sport Package. The high-end sporting character is completed by a BMW Individual roof liner in Anthracite, dark cross-brushed aluminium interior trim, the M gearshift lever for vehicles with six-speed manual transmission and a leather handbrake lever gaiter.

The M Sport Package is optionally available ex factory for all BMW X1 engine variants, indicating that the BMW M GmbH is consistently extending its range of products for BMW X models. A model-specific M Sports Package is also available for the BMW X5 and - likewise of the spring of 2011 - for the new BMW X3.

Exclusive driving pleasure: the BMW Individual product range for the new BMW 6 Series Convertible.

With the market launch of the new BMW 6 Series Convertible, the pleasure of driving an open 2+2-seater luxury-class car reaches an unprecedented level. Aesthetical design and brand-typical sportiness characterise the exclusive character of the large convertible from BMW. The BMW Individual product range offers additional possibilities of creating one's own personal style. The options available with regard to paint colours, light alloys and interior offer attractive ways of turning an already extraordinary car into a one-off that corresponds to both individual taste as well as the highest quality standards.

The choice of materials, manufacturing quality and design of all products from the BMW Individual programme conform to the discerning BMW Group standards, setting at the same time benchmarks for exclusivity in a premium automobile. As a result, the product range represents the highest degree of customer orientation by combining the safety and level of maturity of the series production vehicle with the unparalleled attractiveness of a unique automobile. For instance, innovative manufacturing technologies incorporated into the particularly complex painting process facilitate unique effects. In addition, the natural characteristics of the selected leather and wood qualities are emphasized during processing.

All products featured in the BMW Individual range are available as individual options. Furthermore, a BMW Individual package is offered for the BMW 6 Series Convertible containing products that excel through perfectly matching colours and materials. In addition, individual customer requirements, which can go as far as a one-off version that is produced entirely at the BMW Individual manufacturing facility, are also realised.

BMW Individual paint colours: brilliant appearance.

With the choice of BMW Individual paint colours, the driver of the new BMW 6 Series Convertible can express appreciation for the fine things in life visible at the very first glance. Thanks to the application of up to seven layers of paint and the addition of special colour pigments, BMW Individual paint colours create fascinating shimmer effects, remarkable brilliance and unprecedented depth. For the new BMW 6 Series Convertible there is a choice of the BMW Individual paint colours Citrine Black metallic, Ruby Black

metallic, Moonstone metallic and, for the first time, Tanzanite Blue. In addition, the BMW Individual special paints Brilliant White and Agate Brown are offered.

All car body paints can be combined with BMW Individual High Gloss Shadow Line or the BMW Individual Exterior Line burnished aluminium. The BMW Individual rear end logo and BMW Individual light alloys available for the BMW 6 Series Convertible also contribute towards a particularly expressive appearance. In addition to a 19-inch version with a V-spoke design, 20-inch, forged light alloys are also available.

Carefully selected, carefully treated:

BMW Individual full leather Merino interior trim.

The premium character of the BMW Individual full leather Merino interior is the result of carefully selected, flawless raw materials as well as careful treatment.

Consequently, the leather used for the seats, the door panels, the centre console and the dashboard retains its natural, open-pored structure, remains breathable and offers the highest degree of comfort. Its finely grained, soft surface has a remarkably elegant appearance and an extremely pleasant feel. The full leather interior is available for the new BMW 6 Series Convertible in the colours Platinum, Champagne, Amaro Brown and Cohiba Brown as well as in the new variant Opal White. A further distinctive feature of this leather trim is the individual seam pattern featured on the seats. Piping and seams each boast a contrasting colour.

As an ideal combination with the chosen leather colours, three versions of the BMW Individual interior trims are available. In addition to Piano Lacquer Black and Plane Dark Brown, the new colour Ash Grain White is being presented for the first time for the new BMW 6 Series Convertible. Along with the interior trims, a BMW Individual wood intarsia for the steering wheel in the corresponding material quality is offered as an additional option.

The BMW Individual package configured for the BMW 6 Series Convertible comprises colour-matching versions of the full leather interior, the interior trims and the wood intarsia for the steering wheel. Furthermore, the vehicle is fitted with BMW Individual doorsill trims.

3.8 The best ideas for even more driving pleasure: Original BMW Accessories.



Parallel to the current model initiative, the range of Original BMW Accessories offers a multitude of new possibilities to enhance the pleasure of driving a BMW to suit one's personal needs. The choice of products presented at the 2011 Geneva International Motor Show focuses predominantly on newly developed retrofit components, which contribute towards an even more dynamic driving experience. For example, the components currently included in the BMW Performance product line are now available for the new BMW 1 Series Coupe and the new BMW 1 Series Convertible on show to the general public in Geneva for the first time. For both models the range of Original BMW Accessories also includes sport stripes for the bonnet and the rear, as well as for the roof of the BMW 1 Series Coupe. The decorative element comprising two parallel-running stripes of different width is available in either white or black.

Furthermore, attractive additions to the BMW Performance product portfolio for the BMW 1 Series, the BMW 3 Series and for the BMW X5 and BMW X6 are being presented. These include, inter alia, the new BMW Performance sports steering wheel and the BMW Performance Power Kit for the current four-cylinder diesel engines. Also, the range of Original BMW Accessories being presented at the 2011 Geneva Motor Show includes the latest M Performance components for the BMW M3.

Enhanced pulling power, no increase in fuel consumption: the BMW Performance Power Kit for the BMW 120d and the BMW 320d.

Thanks to sporty driving characteristics and exemplary fuel consumption levels, BMW models featuring a four-cylinder diesel engine set the benchmark for efficiency in several vehicle segments. Now it is possible to optimise the balance between driving pleasure and fuel consumption even further. The BMW Performance Power Kit for current diesel models of the BMW 1 Series and the BMW 3 Series ensures a noticeable increase in maximum output with consistently low fuel consumption and CO₂ emission levels. It is available as a retrofit component for the BMW 120d and the

BMW 320d with a standard power output of 130 kW/177 bhp as well as the new generation of the BMW 320d featuring a 135 kW/184 bhp engine. A corresponding option for increasing engine output and torque can also be ordered for the BMW 520d for even more driving pleasure. However, the BMW 520d's fuel consumption of 4.9 litres/100 km in the EU test cycle, a level unmatched in this segment, remains unaffected by the boost in performance.

The BMW Performance Power Kit for the diesel engines comprises perfectly harmonised software and hardware components. They were exclusively developed for both variants of the 2-litre, four-cylinder diesel power unit with all-aluminium crankcase, Common Rail direct injection and supercharger. Specific modifications to the engine management have a positive effect on development of power. A large intercooler and a highly-efficient fan for the main radiator adapt the system to the varying thermal conditions. As a result, maximum output of the four-cylinder diesel engine is boosted from 130 kW/177 bhp to 145 kW/197 bhp and from 135 kW/184 bhp to 147 kW/200 bhp respectively. Maximum torque, which is available from 2,000 rpm and 1,750 rpm respectively, is raised by 40 Nm to 390/420 Nm.

The most significant result of this power increase is the noticeable optimisation of acceleration and elasticity on all models, including the acceleration from 80 to 120 km/h in 5th gear, which is now up to one second faster. The BMW Performance Power Kit for diesel engines is available in the respective version not only for the BMW 320d Sedan, but also for the respective touring model, the coupe and the convertible as well as for model variants featuring BMW xDrive intelligent four-wheel drive technology. Within the BMW 1 Series, the three-door and five-door BMW 120d, the BMW 120d Coupe and the BMW 120d Convertible can be equipped with the retrofit component to boost performance.

Characteristic sound, exclusive look:

BMW Performance Sports Silencer.

A further retrofit component recently added to the BMW Original Accessory range is the BMW Performance Sports Silencer, which is available for all four-cylinder diesel power units of the BMW 1 Series and BMW 3 Series. In addition to optimising exhaust back pressure, this feature develops a

specifically characteristic sound that is exceptionally impressive during acceleration. Moreover, two round chrome-plated 74-mm tailpipes give the exhaust system a strikingly sporty look.

The latest range of BMW Performance products also comprises an attractive complementation of the BMW X5 and the BMW X6 models. From the spring of 2011, a BMW Performance Sports Silencer will be available for the models BMW X5 xDrive35i and BMW X6 xDrive35i. The stainless-steel sports silencer emphasises the characteristic acoustics of the straight-six power unit featuring BMW TwinPower Turbo, at the same time ensuring a drop in exhaust back pressure. Furthermore, the oval-shaped, black chrome tailpipes give the rear end a highly distinctive appearance.

**New design and additional functions:
the BMW Performance Sports Steering Wheel.**

With ergonomically optimised design and additional technical features, the revised version of the BMW Performance Sports Steering Wheel now enhances the sports-oriented driving experience even further. The steering wheel rim's flattened lower section, the Alcantara cover that offers perfect grip even in extremely demanding driving situations, and an integrated race computer clearly indicate, among other things, that it was directly inspired by motor racing.

The function display featuring LED technology and located behind a high-quality polycarbonate glass cover in the upper section of the steering wheel rim provides miscellaneous information on oil and water temperature, longitudinal and lateral acceleration as well as gear shift point and time within the direct field of view of the driver. The desired information is accessed via special buttons, which are arranged in the thumb rest area of the steering wheel rim. When selecting the accessible information, the driver can choose between the "Efficient Dynamics", "Sport" and "Race" modes. The new BMW Performance Sports Steering Wheel is available for all models of the BMW 1 Series and BMW 3 Series as of the spring of 2011.

**Maximum performance down to the smallest detail:
M Performance components for the BMW M3.**

The BMW M3's outstanding dynamics and design can now be selectively and individually optimised using M Performance retrofit components from the

Original BMW Accessory range. The currently offered products comprise attractive and exceptionally high-quality retrofit components for the drive train, suspension, aerodynamics and cockpit.

The M Performance Sports Silencer ensures a highly characteristic enhancement of the BMW M3's V8 power unit. The extremely temperature-resistant sports silencer, which is 40 percent lighter than the series production version, is made of a chromium-nickel material developed for motor racing, the typical M dual tailpipes being made of titanium. 19-inch M light alloys sporting the Competition design underscore the BMW M3's dynamic handling potential, the M Performance rear spoiler and M Performance hand-made carbon front apron flaps providing additional downforce. Carbon exterior mirror flaps visually accentuate increased dynamics. Inside the car, the racing-inspired experience is emphasised by aluminium pedals and carbon-look interior trims.

Like all products from the Original BMW Accessory range, BMW Performance and M Performance components comply with the stringent BMW Group quality and safety standards. Consequently, they are subject to an equal extent to BMW's terms of warranty. BMW dealerships, BMW service partners and BMW branches are responsible for the sale and installation of all Original BMW Accessories.