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Summary.

BMW is shaping the future of mobility and the way we experience it through ongoing development projects and technically revolutionary innovations in automated driving, intelligent connectivity and interior design. At the Consumer Electronics Show (CES) 2017, taking place in Las Vegas on 5 – 8 January 2017, the German premium car maker will present a wide range of new products and services which are set to headline this radical change in the very near future. It will also be revealing a vision of an interior whose architecture and user interface are extensively adapted for fully automated driving on board a vehicle that is seamlessly integrated into the driver's digital life. The innovations BMW is presenting at the CES show in design, technology and functionality emphasise the company's leading role over many years – through its ConnectedDrive programme – in the field of connected driving.

BMW's pioneering advances in the areas of automated driving, intelligent connectivity and control and display systems are closely interconnected. The company offers highly innovative systems and technologies in all these areas. Examples include the driver assistance systems available for the brand's current model range, the BMW Connected digital mobility companion and intuitive and flexible control and display systems such as the Head-Up Display, BMW iDrive, voice control and BMW gesture control. Such technologies provide an ideal platform for innovations aimed at delivering a futuristic mobility experience defined by hallmark BMW characteristics.

Steady progress towards automated driving is reducing driver stress and offering drivers a new degree of freedom in how they use their time in the car. At the same time, intelligent connectivity between vehicles, drivers and the outside world is creating new scope for efficient, creative and stimulating use of this freed-up time. At the CES 2017 show, BMW will be showcasing the potential of connected mobility with demonstration drives in a prototype based on the new BMW 5 Series Sedan. This will provide an opportunity to experience innovative digital services underpinned by BMW Connected and the flexible Open Mobility Cloud platform. BMW will also present the BMW Connected Window – its vision for an innovative digital touchpoint highlighting the breadth of possible applications for BMW Connected services not only in the car but also in the home. Looking into the future of interior design, the focus will be on innovative display and control technology. The

BMW i Inside Future sculpture at the CES show will showcase BMW HoloActive Touch, which marks a new dimension in how drivers select and control vehicle, navigation, infotainment and communication functions.

The future of personalised driving.

Demonstration drives in the BMW 5 Series Sedan-based prototype will shine the spotlight on a personalised, connected driving experience in a highly automated vehicle. A variety of technical modifications to support automated driving, based on the research & development projects of autonomous driving, have been incorporated into the new BMW 5 Series for the purposes of the demonstrations. On specific route segments, drivers can hand over both longitudinal control tasks and lateral control to the assistance systems, which frees them up to concentrate on other activities. The sensor and control technology that makes it possible for drivers not only to delegate acceleration and braking to the vehicle but also to take their hands off the steering wheel for long periods at a stretch is based on a further-refined prototype solution based on the driver assistance systems already fitted in today's production vehicles. This is another reminder of the high quality and potential of the technology already deployed in current BMW models.

From vision (CES 2016) to product (2017): the BMW Connected personal digital mobility companion.

With ConnectedDrive, BMW was an early pioneer in enabling extensive in-car access to online infotainment and communication functions. In spring 2016, BMW went on to provide a digital platform – in the shape of BMW Connected – which customers can access not only in their BMW but also on a wide range of devices outside the vehicle. This allows mobility planning to be seamlessly integrated into users' digital lifestyles, supporting them both on the road and in other areas of their daily lives. The concept of BMW Connected and the Open Mobility Cloud was first presented at CES 2016. The market launch in the USA took place soon after, in March 2016. BMW Connected has been available in Europe since August 2016, and China followed suit in the fourth quarter of 2016.

A further system presented by BMW at last year's CES and likewise brought to market in record-quick time is the research application Remote 3D View. By combining the Surround View driver assistance system with BMW Connected connectivity features, this system allows a three-dimensional view of the vehicle and its surroundings to be transmitted via a mobile data connection to the driver's smartphone. The service, which allows drivers to keep their eye on their parked vehicle at any time, regardless of their location, will make its production model debut in February 2017 on board the new BMW 5 Series Sedan.

Intelligent connectivity.

BMW Connected turns the vehicle and mobile devices into touchpoints for the Open Mobility Cloud. At CES 2017, BMW will be showcasing digital services that will allow drivers of future automated vehicles to optimise the way they plan their daily lives. One such feature will enable drivers to access wide-ranging information about places or buildings they see along their route. The information can be selected using BMW Augmented Gesture Control – a new form of gesture control – by pointing at a particular building, for example. The connected driving experience will also be enhanced by intelligent voice control. BMW Connected demos will feature a visionary concept of an in-car voice-controlled personal digital assistant that customers are familiar with in other areas of their daily life. The system being presented at CES 2017 is the in-car application of Microsoft's Cortana. This means that the voice-controlled capabilities already offered by Microsoft Cortana on a home PC could or smartphone in future also be available on board a BMW. For example, BMW Connected can provide a reminder en-route of an upcoming appointment for which no location has yet been fixed. And Cortana can be used to make a suitable restaurant recommendation and reserve a table.

Another service possible with future versions of BMW Connected is delivery of tens of thousands of goods while the customer is on the road. Amazon Prime Now, which is integrated into all the user's devices (both in and outside the vehicle) via the Open Mobility Cloud, enables goods to be ordered through the app while drivers are on the way to their next destination. The En-Route Delivery service will be presented at CES 2017 in conjunction with Amazon Prime Now.

A further example of this collaboration with Amazon Prime Now is BMW Passenger Mode. Based on the selected route, BMW Connected can tell when the vehicle will switch to automated driving and the driver could have time, say, to use Amazon Prime Video. In Passenger Mode, the vehicle can then adapt to the passengers' needs in different situations. For instance, when rear-seat passengers start playing a video, the interior lighting is immediately dimmed and the sunblinds closed.

Innovative control and display technologies.

The BMW i Inside Future sculpture at CES 2017 focuses on the opportunities and challenges presented by fully automated driving. What will we be able to do in an interior of the future? What kind of experience will a car journey offer? BMW i Inside Future shows there will be no conflict between personalisation and sharing in the car of the future. It also showcases BMW HoloActive Touch, BMW's latest take on the future of in-car control and display technology.

BMW HoloActive Touch is the latest chapter in a story that began with BMW iDrive. That system, which was revolutionary when first introduced and was subsequently imitated throughout the automotive industry, was both a substitute for and a complement to conventional switches and buttons.

With the Air Touch system, featured at CES 2016 in the BMW i Vision Future Interaction concept car, BMW presented a panoramic display that can be operated just like a touchscreen – except that there is no actual contact involved. Now this system has been taken a stage further with BMW HoloActive Touch. BMW HoloActive Touch fuses the advantages of the BMW Head-Up Display, BMW gesture control and intuitive touchscreen functionality with revolutionary technology to create a completely new kind of user interface for the vehicle interior of the future. This innovative interface between the driver and vehicle consists of a free-floating virtual display which is projected in the area above the centre console. The system is operated directly by finger movements, while an ultrasound source provides tactile confirmation of the driver's commands. That said, in neither case is there ever any actual contact between the driver and the user interface.

BMW Connected Window: a digital touchpoint.

The continuously expanding functionality of BMW Connected is based on the idea that the move towards ever-increasing digitalisation, whether on the move or in the home, is set to promote the extensive yet at the same time precisely personalised link-up of every area of our lives. Using the Open Mobility Cloud, BMW Connected will be seamlessly integrated into multiple digital touchpoints. At CES 2017 BMW will be presenting the BMW Connected Window vision to illustrate the possibilities these developments offer for a personalised and intelligent enhancement of digital lifestyles. The BMW Connected Window integrates every type of information relevant for daily mobility planning. Using the Open Mobility Cloud, this virtual window offers digital functions to support personal daily planning and numerous other aspects of individual lifestyles.

The BMW Connected Window extends BMW Connected's wide-ranging functionality to include digital life at home. It shows the user – at the relevant time and in the relevant area of the home – what actions may be required for personal mobility planning. Since the system is linked up with BMW Connected, exchanging information and contacts, planning the user's personal mobility agenda and selecting infotainment functions are possible not just in the vehicle and on a smartphone but also on a "big screen" in the user's own home. The technology is operated using gesture control, i.e. by intuitive touchscreen-style commands – but without actually touching a screen.

2. Prototype based on the new BMW 5 Series Sedan unveils the future of personalised, connected mobility.

The vision of BMW Connected.

Advances in automated driving and intelligent connectivity are moving hand in hand. Connectivity means extensive data-sharing, which is not only important for safe and convenient mobility with a highly automated element but opens up other possibilities, too. For example, intelligent connectivity between the vehicle, the driver and the outside world also creates new opportunities for drivers to plan their personal mobility experience and integrate it with the rest of their daily life. At CES 2017, BMW will be giving a preview of how the mobility experience will evolve with the help of innovative digital services. Development work is now sufficiently far advanced for BMW to demonstrate the relevant technology in a prototype based on the new BMW 5 Series Sedan.

The ground-breaking mobility experience, served up in customary BMW style, starts even before the driver steps on board the vehicle. Users can connect up to the underlying digital platform not only in their BMW but anywhere they want, on a variety of devices such as smartphones, smartwatches or via Amazon Echo with integrated voice assistant. Based on BMW Connected and the Open Mobility Cloud, this platform is already up and running worldwide. Using a wide range of digital services, BMW Connected adapts to the personal mobility needs of users, helping to get them to their destination with a minimum of stress.

At CES 2017 BMW will be showing examples of future new digital services which will draw on the potential of automated driving to create an enhanced mobility experience and to help drivers plan their everyday lives more efficiently. As increased levels of vehicle automation relieve drivers of more and more driving tasks, BMW Connected will assist drivers in using this freed-up time efficiently and help make all time spent on board is as rewarding as possible.

Personalised mobility planning.

Working through the link-up with the Open Mobility Cloud, BMW Connected is a personal mobility companion capable of integrating all the necessary information for optimal personal daily planning. BMW Connected collates the necessary data from a wide range of applications and integrates it into the

user's personal mobility planning. It makes no difference whether this data was inputted in the vehicle or on any of the digital touchpoints linked to the Open Mobility Cloud. This revolutionary approach offers major potential. In a very realistic scenario, BMW Connected is already demonstrating its ability to manage the mobility experience in an automated BMW. The personal digital mobility companion can use its overview of the driver's appointments and contacts to automatically calculate the optimal route to an agreed meeting place. It can then notify the driver of the ideal departure time for a punctual arrival based on real-time traffic information. The Open Mobility Cloud serves as an intelligent data management system processing all the relevant data. Appointments and destinations can be added, modified or deleted to update the mobility agenda in real time and make any necessary route adjustments. This data can then be accessed at any of the connected digital touchpoints. In this way the navigation system, which automatically launches as soon as the driver enters the vehicle, always works with the most up-to-date data, delivered to it by the Open Mobility Cloud.

In the future, BMW Connected will also be able to identify in advance which route segments can be covered in automated mode. On those stretches driven in conventional mode – i.e. where the driver retains full control of the vehicle – a further innovative service will be available: BMW Real Time Traffic Light Information. When the vehicle is approaching a set of lights, this traffic light phase assistant informs the driver how long the lights will remain on green or red. This intelligent connectivity between the vehicle and its surroundings allows drivers to adapt their driving style to the current situation on the road – and make good use of any waiting time at the lights.

Enriching the automated driving experience.

At CES 2017, BMW will be staging a demonstration of automated motorway driving in a prototype based on the new BMW 5 Series Sedan. Drivers no longer need to operate the accelerator or brake pedal and can also take their hands off the steering wheel, allowing them to concentrate on other activities instead. An extra onboard computer continuously cross-checks the vehicle's position and data about its surroundings against a highly detailed digital roadmap, resulting in very accurate lane-keeping.

While their vehicle is in automated driving mode, it is up to drivers how they spend their time. They can, for example, take advantage of the opportunity to look more closely at their surroundings. The connected driving experience in vehicles of the future will be assisted by innovative control functions such as a further-improved version of BMW gesture control, which made its world debut in the new BMW 7 Series and is now also available in the new BMW 5 Series. The BMW Augmented Gesture Control system will allow the driver and front

passenger to point at buildings on either side of the road using thumb gestures and receive corresponding location-based information from the Open Mobility Cloud. Such a simple gesture is all it takes to call up say, details of a casino entertainment programme for that particular day, and display the information in the Control Display. This intelligent connectivity can also go a step further still, allowing tickets to be booked online from the vehicle.

Alternatively, drivers can also use this freed-up time to plan the rest of their day. Once again, they can select in-car digital services that are identical to those they are already familiar with in other areas of their life. For example, customers can choose to operate BMW Connected via existing voice recognition services, if that is their preference. At CES 2017, BMW will demonstrate future scenarios with Microsoft Cortana. If, say, a meal is planned following a scheduled meeting, the voice recognition service can be used to select a suitable restaurant. The user's previous preferences are compared with the options available in the vicinity of a selected location. If a suitable restaurant is found, Cortana can also be used to reserve a table. BMW Connected then attaches the address to the appointment and posts this information in the mobility agenda, where it is then available for later reference.

Automated driving will also be accompanied by additional BMW Connected-based functions to enhance the mobility experience in the rear seats. Series-produced vehicles already provide the basic technology for this through existing equipment options. For example, the Touch Command option for the BMW 7 Series luxury sedan, comprising a removable tablet, can be used to control convenience functions and the onboard infotainment, navigation and communication systems. In the future, BMW Connected will also allow in-car use of any connected tablet. This is a simple and convenient solution for personalising the mobility/travel experience in the rear seats and integrating it into the customer's digital lifestyle.

At CES 2017, BMW will be showcasing the possibilities for seamless in-car integration of customers' tablets, and presenting BMW Connected's Passenger Mode as one example of the functionality that can be provided. When the video playback function is selected on an integrated tablet, Passenger Mode alters the ambience in the rear of the vehicle – by raising the sunblinds and dimming the interior lighting, for example. At CES the system will be demonstrated using Amazon Prime Video. A further innovative service that could potentially be offered in cooperation with Amazon is En-Route Delivery. A direct link between BMW and Amazon Prime Now would allow people travelling on board a BMW 5 Series Sedan to order products while en route and have them delivered to a location further along their route. The ideal

pick-up point can be calculated by Prime Now and the Open Mobility Cloud based on the vehicle's current position, current route and real-time traffic information. BMW Connected then prompts the driver to confirm a suggested pick-up point as an additional stop-off on the route. When the vehicle arrives at the pick-up point, the Prime Now delivery associate hands over the selected product, which has already been paid for online. This innovative, convenient and superfast service is a great solution for a driver who, for example, is on their way to a birthday party and has forgotten to buy a gift.

Automated parking follows automated driving.

The highly-automated demonstration drive at CES 2017 in a prototype based on the new BMW 5 Series Sedan concludes with the Robot Valet Parking service – a fully automated parking procedure. When the driver returns to their starting point again at the end of the drive, the vehicle makes contact with the parking management service at the exhibition centre. At this point, the Control Display shows the driver that they are entitled to use the pre-reserved valet parking. On approaching the parking area, a robot welcomes drivers with a personalised greeting and directs them to the vehicle drop-off point. As soon as the driver and occupants have exited their vehicle, the automated parking manoeuvre is initiated.

The intelligent vehicle/driver connectivity technology based on the Open Mobility Cloud now adds the icing to the cake: a message is sent to the driver's smartphone when the vehicle has reached its final parking position. At the same time, Remote 3D View – a new service making its debut in the new BMW 5 Series Sedan – provides drivers with a real-time view of the parked vehicle on their smartphone.

3. Travelling in the cars of the future.
Room for greater individuality through the intelligent application of innovative technology.

How do we wish to travel around in future? What do we expect of a car interior? In what way do we want to experience a journey? Alone yet together, connected yet independent, safe yet cosy. BMW i Inside Future addresses these issues and puts forward ideas for debate.

Today, intelligent connectivity is already increasing the options available for customers to manage their personal mobility agenda and use digital services inside their vehicle. Drivers and passengers are already accustomed to remaining permanently connected with their digital life while out on the road. This expectation leads, among other things, to greater demands on the vehicle's display and control system. Interior design will be increasingly influenced by the desire to control a growing number of functions easily, safely and intuitively. The wealth of functions on offer is remarkable even now, ranging in current BMW models from state-of-the-art driver assistance systems and in-car entertainment programmes to the array of communications facilities that turn the car into a mobile office. And with the advances in autonomous driving anticipated for the future, the list is certain to grow longer still.

At CES 2017, BMW is unveiling its BMW i Inside Future sculpture, which caters precisely to the individual requirements of a vehicle's driver and passengers in all sorts of ways, while still providing sufficient space to experience a journey together. The interior is conceived as a room with separate zones allowing the passengers to spend the journey as they please, fulfilling to-do lists and wish lists alike.

The various ideas for the vehicle interior of the future include a pioneering way of controlling functions: BMW HoloActive Touch takes the gesture control functionality that is already available today in the BMW 7 Series and BMW 5 Series to a whole new level. The innovative interface between driver and vehicle comprises a free-floating display next to the steering wheel that can be operated directly with the finger, and an ultrasonic source that provides tactile feedback for the driver's inputs – all without actual contact being made with a user interface.

The interior's transformation into a living space.
The BMW i Inside Future sculpture exhibited at CES 2017 offers a look ahead to the future of interior design. BMW's vision makes allowance for the fact that a vehicle's interior is set to turn more and more into a living space for comfort-focused, permanently connected users. The interior of the future will function as a place of retreat, an office or a recreational space for entertainment, as required. Intelligent connectivity is expanding the spectrum of digital services available inside a vehicle, while automated driving is reducing the driver's workload and providing the extra freedom needed to take advantage of these services in their car.

BMW is leading the way in the development of these key drivers for the future of mobility. Today's BMW models are already available with numerous systems rooted in forward-looking technologies that are also ideally prepared for further advances – in terms of both automated driving and intelligent connectivity and control systems. Driver assistance systems provide an ever-increasing degree of effective support, not just with controlling speed, regulating the distance to other vehicles and keeping in lane, but also with avoiding collisions by monitoring traffic moving along the same road or crossing it. BMW Connected provides customers with a personal mobility assistant that seamlessly interlinks use of the vehicle with their digital life. This involves using both the vehicle itself and personal devices – such as smartphones, smartwatches, tablets or the Amazon Echo with built-in voice assistant – as digital touchpoints for the flexible Open Mobility Cloud platform. A display and control system ensemble offering unrivalled functionality and diversity ensures intuitive, highly convenient control of these and other services from the vehicle; conventional buttons, the iDrive system, the touchscreen function for the Control Display, BMW gesture control and voice control combine to create an operating toolkit that both encompasses a vast number of different functions and makes allowance for individual preferences.

With BMW i Inside Future, BMW is demonstrating how these technologies can be taken a few steps further and supplemented by further innovations to create the vision of an interior that has been purpose-designed for fully automated driving and intelligent connectivity. The study emulates the state-of-the-art, luxuriously appointed ambience of a premium car, in which top material and build quality are traditionally combined with unobtrusive technology that is there whenever it is needed.

Multifunctional cockpit with fully integrated widescreen display.
The interior of the future has been designed so that both the ambience and controls adapt to the current driving mode. In the future, too, it will be the driver alone who makes the choice between active and automated driving. The

navigation system identifies those sections of the route that are suitable for highly or fully automated driving, and the driver is notified when the vehicle reaches such a stretch of road and can then activate the switch to automated mode. The driver can also take over control of the vehicle again at any time when driving in automated mode.

Elements of the cockpit's appearance, including the display and control system, change in accordance with the selected driving mode. In Drive Time mode, the functions that are geared towards active driving take centre stage. With the introduction of automated driving, however, the tasks of longitudinal and lateral vehicle control will be taken care of for the driver. The vehicle accelerates, brakes and steers by itself, without the driver having to intervene. In future, this form of mobility will probably first become possible on selected stretches of road – for logical reasons these will be motorways or other roads where traffic moves in the same direction.

The BMW i Inside Future sculpture is equipped with a Dashboard Display that is fully integrated in the instrument panel and extends across its entire width. In contrast to conventional screens, the non-illuminated areas of the cutting-edge widescreen monitor do not stand out from the sections of the cockpit surrounding them. All functions can be selected and activated by voice control or from the driver's seat using the BMW HoloActive Touch system.

BMW HoloActive Touch: revolutionary technology for a fascinating user experience.

The BMW i Inside Future sculpture exhibited by BMW at CES 2017 features a major innovation in the form of a control element that combines the sort of touch operation familiar from smartphones and tablets with BMW gesture control to optimum effect. BMW HoloActive Touch is a system that produces full-colour, interactive displays in free-floating form in the vehicle's interior. A high-sensitivity camera registers hand movements made within the zone in which the display is visible to the driver. The camera monitors the position of the fingertips especially, allowing it to detect when the driver selects an element so that the system can immediately react by activating a function, for example. In the same instant, an ultrasonic source – discreetly integrated into the cockpit just like the camera – emits a pulse directed straight at the fingertip, which the driver perceives as tactile feedback. This marks the first time ever that the signals for both visual and tactile perception in a vehicle interior have been generated without physical materials. The result is an additional, completely virtual user interface that provides the driver with a quick and direct input method if required and otherwise fades into the background as much as possible.

The principle used for creating a display that appears to float freely in the air is similar to the way in which images are generated for the Head-Up Display available for numerous current BMW models. With the Head-Up Display, driving-related information is projected onto the windscreen in colour. In the case of BMW HoloActive Touch, however, the driver sees the image in the vehicle's interior rather than in front of the vehicle. To achieve this effect, the beams of light emitted from the instrument panel by the projector are reflected twice by microprisms. The display then appears in an ergonomically prime position above the centre console, where it can be operated directly by the driver without any wearisome stretching of the arm. The display shows a menu consisting of horizontally arranged tiles that allows quick, clear selection of the desired function, just like the Control Display's touchscreen. The functions can be operated by Virtual Touch and vary in type and number depending on the selected driving mode. During highly automated driving, for example, this brings additional comfort, infotainment and communication functions into play.

As with BMW gesture control, the BMW HoloActive Touch system also captures the driver's hand movements using a high-sensitivity camera, which focuses particularly on the position of the fingertips in relation to the image floating in mid-air. This enables the system to determine exactly which of the tile-like menu options the driver is selecting with their finger and to activate the associated function.

To round off the pioneering user experience offered by BMW HoloActive Touch, for every command issued with a movement of the finger the driver receives feedback not just in visual and acoustic form but also as a tactile signal. When the user points their finger at the desired menu option with the required effect, the image changes simultaneously, a discreet tone sounds and a light pressure pulse can be felt at the fingertip. The tactile sensation is similar to the feeling of vibrations, such as those produced by pressing down on the surfaces of smartphones or other similar devices. With BMW HoloActive Touch, the corresponding signal is generated by concentrated ultrasonic waves that are directed straight at the fingertip. In this way, the free-floating display is turned into a virtual touchscreen that stimulates the same senses as its physical counterpart with a touch-sensitive glass or plastic surface. BMW HoloActive Touch therefore represents a vision of a user interface for the car interior of the future that can be used universally with no restrictions on its geometrical design.

The personal BMW Sound Curtain.

Another innovation being presented for the first time in the BMW i Inside Future sculpture on show at CES 2017 is the personalised audio programme. In the vehicle interior of the future, the driver and

passengers can each enjoy their own personal entertainment programme. To this end, the audio signal is emitted solely through the personal BMW Sound Curtain in each seat's head restraint; the acoustic signals can be heard only by the occupant of that particular seat.

Rear-seat passengers experience a new dimension in entertainment.
BMW i Inside Future also has a state-of-the-art entertainment experience up its sleeve for the passengers in the rear. A large-format widescreen display that folds down out of the headliner makes it possible to watch content that is either being streamed using an online service or played from a device connected to the vehicle. When the video screen is not in use, it serves as an additional overhead light source for creating atmospheric ambient lighting effects. The innovative new entertainment system for the rear passengers can be controlled from a built-in tablet. Or occupants can choose to link up a personal mobile device to the system via BMW Connected for the job at hand.

4. The BMW Connected Window.
Looking out into individual experiences of mobility.

BMW Connected and the Open Mobility Cloud turn personal mobility planning into a seamlessly integrated element of a user's digital lifestyle. At CES 2017, BMW is demonstrating the vast capability of this all-encompassing digital concept with an idea for an innovative user interface for the home of the future. The BMW Connected Window is designed to be one such digital touchpoint and highlights the tremendous potential of connectivity. The BMW Connected Window shows the view outside as well as visualising the user's current mobility schedule and a wide variety of other content, such as weather forecasts and appointments. This novel concept from BMW is intended to illustrate the vast range of possibilities for seamlessly integrating BMW Connected into a user's various touchpoints outside the vehicle via the Open Mobility Cloud.

Planning appointments and incorporating them into a user's personal mobility agenda, sharing information and selecting infotainment features can all be organised centrally via BMW Connected. Various fully interconnected touchpoints can be used to access the relevant data: the BMW's operating system while driving and the user's smartphone, smartwatch or tablet anytime and anywhere. BMW Connected can also be used in conjunction with the intelligently connected Amazon Echo device with built-in digital voice assistant. With its vision of the BMW Connected Window, BMW is showing just how diverse the possibilities for intelligent connectivity between digital touchpoints already are and highlighting the potential for the future.

The BMW Connected Window vision brings the versatile functionality of BMW Connected into the home. In the scenario played out at CES 2017, the potential uses are illustrated over the course of a typical daily routine. A message on the Window greets the user as they start a new day. Their upcoming appointments are shown in one part of the display based on the information supplied via the Open Mobility Cloud. At the same time, the screen's background adapts to the user's current situation by showing associated images.

The connectivity concept means that the entire spectrum of digital services can be used – and combined with the unrivalled display capabilities of a big screen. The mobility agenda is depicted as a vertical timeline on the right-hand edge of the screen, with the relevant data delivered to the Window via

BMW Connected, for example. The display is enlarged when the user makes a certain gesture in the screen's direction, revealing more details about the appointments listed in the timeline. If a note has been made of an arranged meeting point, BMW Connected plans the route, which is permanently updated in response to real-time traffic information and can be viewed on the display in the form of a large-scale map rendered in photo-realistic quality. The calculated route will then also be available in the vehicle, its navigation system starting automatically when the user gets in.

The user's smartphone is connected to BMW's Open Mobility Cloud in the same way as their car and the BMW Connected Window. This allows a text message received on a smartphone to be called up on the big-screen display, too. Any information contained in this message relating to venues, appointments or contacts can be quickly and easily transferred to the user's mobility agenda. A few finger gestures are all it takes to enter the name of the venue or the time of a new meeting, for example. Besides this, delivery services can also be proposed or restaurants selected and contacted, based on the user's personal preferences. The user can also summon up suitable shopping locations on the way to work, for instance, or favourite places to buy a coffee-to-go – and add them to their mobility agenda with a quick point of the finger. All updates and amendments to the personal mobility agenda are taken into account when calculating journey routes and determining the ideal time to set off. As a result, the mobility agenda is always kept up to date and helps drivers to reach their destinations with ease.

BMW Connected is also capable of recognising personal mobility patterns. In the future, this will make it possible for regular activities to be factored in when compiling the day's mobility agenda. BMW Connected will find a suitable time slot for sports activities, for example, or for attending an event that has been visited several times in the past. The update to the mobility agenda proposed as a result will then be displayed on all touchpoints connected to the Open Mobility Cloud, in both the car and home, from where they can be added to the personal timeline with a few simple steps.