

# The all-new BMW iDrive. Contents.



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# The all-new BMW iDrive.

## Individual, intuitive, intelligent, proactive, high-resolution and ready for the future.



The new generation of BMW iDrive takes the interaction between driver and vehicle into a digital future where many areas of life are getting increasingly smart. The new interpretation of BMW's operating system equips the vehicle to actively engage in its relationship with those on board and, in so doing, serves as a digital, intelligent and proactive partner in any situation. A natural dialogue is created with the aim of precisely tailoring all the functions controlled via BMW iDrive to the driver's needs and preferences as the situation demands.

Underpinning the unique user experience are the new BMW Operating System 8, a new generation of displays, controls and software, and extremely powerful connectivity and data processing. The new iDrive will be rolled out gradually across all vehicle classes, making its debut later this year in the BMW iX before also featuring in the BMW i4.

The ability of the BMW Intelligent Personal Assistant to adjust to the driver's individual needs and routines, as well as the situation at hand, makes it – more than ever – a central operating channel of human-machine interaction. The operating system is designed with a clear focus on dialogue-based interaction using natural language and touch operation via the BMW Curved Display. And then there is "Great Entrance Moments", which brings emotionality to the relationship between driver and vehicle even before the driver climbs on board. This new customer experience welcomes the driver and invites them into the vehicle with a thoroughly choreographed routine. During the journey, the new My Modes use an all-encompassing interplay of various functions to conjure special moments from a combination of vehicle characteristics and the interior ambience adapted to the situation at hand.

The new BMW iDrive constantly processes a large quantity of self-generated data, information available online and data imported from the BMW Group vehicle fleet to implement the driver's wishes in a context-related way. Paving the way for even greater personalisation is the BMW ID. This system recognises repetitive situations, learns from them and provides suggestions on how functions can be activated accordingly. Remote Software Upgrade allows the new BMW iDrive to benefit from regular over-the-air improvements, integrate additional functions and stay up to date at all times.

What began 20 years ago with the introduction of a rotary dial and a digital display is now an all-encompassing, intelligent, multi-sensory experience tailored to the user at hand. That is what the new BMW iDrive represents. It brings about another paradigm shift – this time to a natural dialogue between the user and their vehicle: more intuitive, personal and inspiring, but also engaging on an emotional level.

# Design approach and operating concept.



The BMW iX all-electric Sports Activity Vehicle was developed from the inside out. It's the same story with the user experience for the new BMW iDrive. The wishes of those travelling in the iX underpin how the user experience is designed – in all its facets and for all the senses.

Advances made in the field of digital design are likewise reflected in the design of a user interface which not only fulfils its functional role but is also extremely clear, aesthetically pleasing and rich in detail. This artistic approach creates surprising moments, with graphic presentation on the displays precisely designed, down to the last pixel. The interaction between driver and vehicle becomes a unique experience in which the boundaries between the digital and analogue worlds melt away. The digital design's use of form fits in neatly with the geometric structures of the analogue elements in the new BMW design language. A prime example is the use of clear, minimalist design in both the exterior and interior of the car, which is reprised by the pure, reduced design of the digital elements of BMW iDrive.

The most distinctive new addition to the physical components on board is the BMW Curved Display, which groups together the information display and control display. This curving screen offers a futuristic interpretation of the traditional driver orientation in the cockpit design of BMW models. The BMW Curved Display is angled clearly towards the driver to good ergonomic effect, making the intuitive touch control even more straightforward. In this new BMW Curved Display, the screen areas of the 12.3-inch information display and 14.9-inch control display merge together into a single unit.

The “Act, Locate and Inform” principle, which ensures information is distributed clearly and screen redundancy is avoided, takes the signature BMW driver orientation of the cockpit design to a new level. Pre-filtering ensures that only information relevant to the driving situation is presented to the driver – and always shown where they can absorb it as quickly and easily as possible.

Voice control and the touch function of the BMW Curved Display were prioritised as usage options in the development of the new BMW iDrive. The number of buttons and switches has been reduced by almost half. At the same time, control clusters for relevant and frequently used basic functions

are retained where customers expect to find them. The control panels on the centre console and instrument panel have an all-new, strikingly clear and minimalist design. The familiar iDrive Controller is the central control element on the centre console. The Touch Controller, designed in an extremely smart glass-effect finish for the BMW iX, is encircled by a bezel painted in Gold Bronze.

The upgraded BMW Intelligent Personal Assistant performs the role of a digital character which can engage in natural dialogue with the driver and front passenger – similarly to a relationship between humans.

# Graphical user interface.



The new generation of BMW iDrive brings a new design language for the newly developed BMW Operating System 8. Strong and eye-catching graphics, modern colours, futuristic textures and forms, bright light and the interplay of reflections create an impressive and immersive visual appearance. At the same time, the user interface has been optimised to present the right amount of information at all times in a simple and easy-to-understand way.

The information display in the driver's central visual axis impresses both with its generously sized screen surface and its striking forms, dynamic light effects, strong depth of colour and modern colour worlds. All of the displays have an extremely high graphic resolution of 200 ppi.

The extensive individualisation options available for the screens in the display area behind the steering wheel can be selected extremely quickly and easily via the function keys on the steering wheel. The two-axis operating system enables user-friendly vertical list navigation with the rotating key, as well as toggling between menus by tilting horizontally. The driver can switch between three layout types and various different widgets according to personal preference or the driving situation at hand – by thumb control and in just a few operating steps. In the Drive layout, drivers can use a dynamically changing area in the centre of the information display to show individually selectable information. The Focus layout, meanwhile, has been designed for extremely dynamic driving situations. By contrast, the Gallery layout largely minimises the driving information view to clear as much space as possible for widget content. For example, information on the media source currently being accessed, the map display or the interventions and action prompts of the driver assistance systems are presented in even greater detail. Colour-coordinated, three-dimensional animations – imbued with extra dynamism by the use of light reflections – give each of the three layouts a distinctive character.

The clear structure and new arrangement logic employed for the widgets, which provide a flawless overview of the relevant information at all times, are an immediately eye-catching feature of the large, horizontally stretched control display. The widgets line up in an unbroken ribbon on the home screen. The content of the widgets is pared back to essential information and presented as a live image. Frequently used functions are shown in the

widgets and can therefore be activated directly by touch. The driver is free to choose the widgets shown on the home screen and configure their order. At the same time, widgets can change depending on the context using seamless and fluid animations to show more or less information, as the situation demands.

The newly designed media player represents a particular aesthetic highlight. Taking the "reduced to the essentials" approach a step further still and adopting a simple arrangement, the clarity of its design has a magnetic appeal. An algorithm selects the cover colour scheme of the music track currently playing and reproduces it dynamically across the display area of the media player.

# BMW iDrive creates a personal relationship and natural dialogue between the user and vehicle.

## **Natural dialogue with the BMW Intelligent Personal Assistant.**

The new generation of BMW iDrive also brings additional skills for the BMW Intelligent Personal Assistant. In order to strengthen the personal connection between the digital companion and the vehicle occupants, users can still give the BMW Intelligent Personal Assistant a name of their choice, which they then use as a prompt.

In communication between people, a great deal of information is conveyed non-verbally. The new visualisation approach for the assistant features spheres of light in differing sizes and brightness levels, giving it more space and new ways of expressing itself. This visual image also gives it a “face” with a clearly visible point of focus and identifiable states of activity via gestures.

Using an extensive requirements and evaluation catalogue, a visualisation form was chosen from a selection of over 100 design approaches. It has a trustworthy and appealing aura and displays the dynamism required to be able to express different emotions and states of mind non-verbally and in a human-like manner.

Advances have also been made in the functionality of the BMW Intelligent Personal Assistant. An expanded pool of underlying data and information has not only made the digital assistant more intelligent, it has also enabled it to act according to context. It can take into account the situation in the vehicle and its surroundings when considering when and how it will communicate with those on board.

The personal assistant follows the shy tech principle of design in terms of how and where it is visible. When it is spoken to, it appears in a fluid animation and spreads out engagingly over the displays, without concealing relevant information. The BMW Intelligent Personal Assistant can distinguish who is talking to it and appears on the relevant screen area. A widget designed specially for the BMW Intelligent Personal Assistant enables rapid access to other settings and suggestions.

The BMW Intelligent Personal Assistant will also learn new functions and new forms of expression as the ongoing development of BMW iDrive continues.

These new features are regularly imported into the vehicle by means of Remote Software Upgrade.

### **Greater personalisation using the BMW ID.**

When using the new BMW iDrive, customers benefit from increasing personalisation of the user experience based on the BMW ID. In future, it will be possible to securely store even more personalised settings in the BMW ID and transfer them between vehicles. A PIN code can be created or the BMW ID associated with a particular key to prevent other vehicle users from accessing personal data.

When the BMW ID has been loaded, the driver will receive a personal greeting which will include the customised profile image that can be uploaded in the My BMW App. Once the BMW ID has been activated with the associated key or by selecting the BMW ID in the vehicle, the personal settings are instantly adopted.

### **A warm welcome from vehicle to driver: Great Entrance Moments.**

“Great Entrance Moments” is the name given to the user experience from the point when the driver first approaches the vehicle until the journey commences. All steps are orchestrated by the vehicle to optimum effect and blended into an inspiring overall experience.

Ultra-wideband (UWB) radio technology is key to enabling all of this. It allows precision location pinpointing between vehicle and the key or smartphone, meaning that the car knows exactly where the driver is approaching from and how far away they are to within a few centimetres. As soon as the distance drops below three metres, the vehicle starts to wake up and indicates this with a gradually intensifying, dynamic lighting effect using the exterior lights. A soft, subdued light comes on in the cabin. The vehicle shows the customer the way to the entrance area, which is lit up by a light carpet in the vicinity of the driver’s door featuring geometric forms inspired by the elements of the graphical user interface. At the same time, the door handles and boot lid handle are illuminated to make it easier for the customer to take hold of them.

Once the driver moves to within one-and-a-half metres, the vehicle unlocks no matter whether they are carrying their UWB key or a smartphone with BMW Digital Key Plus. Opening a door activates the seat’s entry assistance feature along with the surface and steering wheel heating. The entire BMW Curved Display is taken up by a BMW-style welcome animation that shows the system is starting up.

The personal settings from the BMW ID are loaded and a connection is established with the driver's smartphone while they are still getting into the car. If a phone call is in progress, it will be seamlessly transferred to the vehicle's microphone and speakers. Meanwhile, the control display shows a welcome window with a personal greeting and useful suggestions and information.

# BMW iDrive provides optimum support for the driver and uses intelligence to delight.



## **An all-encompassing driving experience for the senses: My Modes.**

The new My Modes feature ensures an all-encompassing user experience geared towards the driver's personal preferences, creating unique moments for both the driver and their passengers. When designing My Modes, consideration was given to a multitude of functions relevant to the driving situation in order to maximise the functionality and emotional impact of the user experience in the situation at hand. My Modes are designed to stimulate multiple senses, from sight to hearing to touch. They can be selected very easily by voice command or by using a dedicated button on the centre console.

The initial version of My Modes will neatly combine up to ten different parameters in the vehicle. These parameters include the previous driving experience mode functions, such as drive system and transmission control, steering characteristics and chassis settings. The activated configuration is indicated by variations in the artwork specially developed for My Modes, the style and layout of the displays, and a change in the display colour, which adapts to the experience setting in the same way as the ambient lighting. Switching between My Modes produces acoustic changes, too, including adjustment of the engine/motor sound.

The new BMW iDrive system will be launched with these Efficient, Sport and Personal Modes. Further modes will be added as part of the ongoing development of BMW iDrive in the future. This will also include modes that do not revolve primarily around the driver or the task of driving. Additional functions will be integrated into the modes and the options for configuring functions extended. These enhancements will be imported into vehicles via over-the-air updates.

## **Navigation, parking and charging with BMW Maps.**

With the arrival of the new BMW Operating System 8, the digital services for navigation, parking and charging are fully integrated into the cloud-based BMW Maps system in a user-friendly way. The intelligent functions of BMW Maps are also being expanded further.

One of the key functions here is "Learning Navigation", meaning that BMW Maps uses the habits associated with the individual BMW ID as the basis for

learning and anticipating the destination the driver is likely to head for next. This saves drivers the trouble of entering the destination again for regular journeys, especially the daily commute to work, when they nevertheless wish to be alerted to delays or hazards along their route. All of the learned destinations can be viewed from the vehicle and in the My BMW App, and deleted if desired.

There is a choice of three different views for the navigation map. The “adaptive” view shows relevant information along the route that is tailored to the specific driving situation and user habits. The information becomes more focused in the “reduced” view, which only displays the four most popular points of interest categories. Meanwhile, in the “expanded” view all available local information can be seen on the map, including points of interest, as well as the traffic situation on side roads and the current parking situation.

### **Intelligent automation of climate control.**

Control of the air conditioning system will be incorporated into the BMW Curved Display in future, as customers should seldom need to adjust any of the climate control settings. To make this possible, all temperature and comfort functions will now be intelligently controlled together. Each further adjustment is registered by the system and stored in the user profile for the BMW ID so that users do not have to keep making the same adjustments.

The ideal pre-set configuration has been programmed based on the evaluation of more than 440 million customer journeys across all model classes and regions of the world. Besides fan speed (airflow) and air distribution, the intelligent automatic climate control also regulates the steering wheel and surface heating as well as the seat heating and ventilation in order to ensure optimum levels of thermal comfort. To make operation of the air conditioning system as energy efficient as possible, the automatic climate control considers a host of other factors, too, such as the number of occupants, where they are sitting and the intensity and direction of the sunlight. This means BMW’s intelligent climate control system is arguably interconnected to a higher degree than any other air conditioning system in the automotive industry.

The air conditioning is operated centrally by specifying a target temperature for each climate zone. Based on the individual user settings in the air conditioning menu, the intelligent climate control automatically regulates and operates all the available features itself. Voice commands can also be used to communicate various requirements directly. Saying, “My feet are cold,” for instance, will result in the temperature in the footwell being increased.

# Technology and connectivity.



## **BMW Operating System 8.**

BMW Operating System 8 is the most powerful and extensive technology stack ever created by BMW. It forms the basis for the eighth generation and new interpretation of BMW iDrive. The BMW Group has been developing the central control unit and software integration platform entirely on Linux and in-house since 2013. Having complete control over software is crucial for creating a stable, upgradeable, high-quality system that distinguishes the brand. In the era of fast-paced digital development, it is no longer enough to completely update a model's digital features every three years.

The arrival of Remote Software Upgrade means the vehicle is now conceived as a digital platform. So, when a new-generation BMW Operating System is launched, the development work is far from finished. Instead, it acts as the basis for ongoing development during the product life cycle. The integrated interaction between hardware and software, the technical possibilities offered by Remote Software Upgrade and the company's agile development processes underpin its ability to make new functions accessible to the customer in a matter of a few months or even weeks.

## **Always up to date: Remote Software Upgrade.**

Since the introduction of BMW Operating System 7 in 2018, BMW drivers have been able to keep their vehicle up to date with the latest software at all times by means of the Remote Software Upgrade facility. The new BMW Operating System 8 offers the same functionality with some important enhancements. Consequently, Remote Software Upgrade for BMW Operating System 8 will also offer the possibility of performing extremely complex and large software updates in areas such as driving assistance and partial automation. BMW Operating System 8 will additionally allow customers to schedule the installation of a Remote Software Upgrade.

The BMW Group is one of the key players in the field of over-the-air function upgrades. By 2020 it was already carrying out the largest upgrade campaigns of any European carmaker. And the BMW Group has set itself the goal of having the largest over-the-air upgradeable fleet of any manufacturer in the world by the end of 2021. By that time, a total of over 2.5 million vehicles from the BMW brand will be able to receive Remote Software Upgrades.

**BMW Digital Key Plus with ultra-wideband radio technology.**

BMW has been pioneering the use of smartphones as digital vehicle keys since 2018. For instance, the premium carmaker has developed a new, convenient and secure way of unlocking and starting the vehicle without the user even having to take their Apple iPhone out of their pocket. The upcoming BMW Digital Key Plus version is based on the ultra-wideband (UWB) technology already integrated into the vehicle and, for example, the iPhone's U1 chip.

UWB is a digital radio technology for short-range high-bandwidth applications that offers exceptionally precise location identification combined with maximum security. The BMW Digital Key Plus will be first introduced for the all-electric BMW iX.

**More apps, greater diversity: optimised third-party integration.**

The new-generation BMW iDrive offers new opportunities for seamlessly incorporating customers' habits and preferences into the operating system. The system's higher degree of flexibility will additionally make in-car use of third-party apps even simpler and more convenient in future. BMW Operating System 8 again ensures full integration of Apple CarPlay and Android Auto, while the new BMW iDrive will also enable extensive integration of the Alibaba and Tencent services for customers in China.

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**The BMW Group**

With its four brands BMW, MINI, Rolls-Royce and BMW Motorrad, the BMW Group is the world's leading premium manufacturer of automobiles and motorcycles and also provides premium financial and mobility services. The BMW Group production network comprises 31 production and assembly facilities in 15 countries; the company has a global sales network in more than 140 countries.

In 2020, the BMW Group sold over 2.3 million passenger vehicles and more than 169,000 motorcycles worldwide. The profit before tax in the financial year 2020 was € 5.222 billion on revenues amounting to € 98.990 billion. As of 31 December 2020, the BMW Group had a workforce of 120,726 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company set the course for the future at an early stage and consistently makes sustainability and efficient resource management central to its strategic direction, from the supply chain through production to the end of the use phase of all products.

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