

BMW Innovation Days 2017

Connectivity and digital services.

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1. BMW Innovation Days 2017 – Connectivity and Digital Services. Summary.



The BMW Group is using the BMW Innovation Days 2017 – Connectivity and Digital Services event to both explore the state of play regarding the integration of vehicles into the customer's digital world and to showcase the company's latest developments in this field.

- Within the context of digitalisation, connectivity is a key pillar of the BMW Group's NUMBER ONE > NEXT strategy for the future.
- 8.5 million BMW Group vehicles worldwide already enjoy connectivity courtesy of BMW ConnectedDrive.
- The launch of BMW Connected in March 2016 marked the beginning of a new era. It is now available in 29 countries and 18 languages.
- 13 iOS updates and five Android updates allow integration of five touchpoints: iOS and Android smartphones, Apple Watch, Samsung Gear and Amazon Echo.
- MINI Connected was launched in November 2016 and has since been rolled out in 33 markets.
- In June 2017 BMW Connected notched up one million users worldwide for the first time.
- Launch of new services in July 2017: The new "BMW Connected+" package enhances the digital experience of BMW drivers through extensive personalisation and more extensive, seamless integration into the vehicle.
- The four Technology Offices in Shanghai, Tokyo, Mountain View and Chicago keep the BMW Group's finger on the pulse, helping it to develop new technologies, local trends and global solutions.
- The team in Chicago specialises in agile software development for digital services and solutions, and comprises 150 experts from 20 nations.
- Further expansion of the selection of in-car business solutions. As well as Microsoft Exchange, Skype will also be available in all BMW vehicles from autumn 2017 to enable easy participation in Skype meetings while inside the vehicle.



2. BMW Connected – Taking connectivity into a new dimension since 2016.

Personalised services as part of a digital lifestyle.

Not only is digitalisation an essential element of the BMW Group's NUMBER ONE > NEXT strategy for the future, it also provides the springboard for its plan to evolve from a carmaker and services provider into a tech company offering premium mobility and services. The company sees four core themes as playing a crucial role in this regard – they are known by the acronym ACES: Automated, Connected, Electrified, Shared. Thanks to standard built-in SIM cards and the various BMW ConnectedDrive products, some 8.5 million BMW Group vehicles around the world are already “connected”, and that number is increasing every day.

For many years now, the BMW Group has been building a portfolio of innovative functions designed to intelligently connect the driver, vehicle and outside world under the BMW ConnectedDrive umbrella. It is synonymous with forward-looking concepts and technologies in and around the vehicle that seek to use connectivity to maximise customer benefit.

A new era of connectivity: BMW Connected.

2016 marked a very special milestone in the evolution of BMW ConnectedDrive. The launch of BMW Connected in the USA in March of that year, with Europe following later in August, heralded a strategic and technological paradigm shift. Whereas the functions of BMW ConnectedDrive had in the past been primarily linked to the car, BMW Connected now used several touchpoints as a platform on which to pool day-to-day mobility functions – thereby allowing a driver's mobility experience to start before entering their vehicle. BMW Connected was therefore the first step along the road to a fully interlinked world in which the car becomes a smart device; intelligently connected, seamlessly integrated and perfectly in tune with the individual needs and context of each and every user.

The first version of BMW Connected was already capable, among other things, of combining mobility-related information such as addresses and appointment times from a smartphone calendar and notifying the driver of the ideal departure time in order to arrive at the appointment punctually using real-time traffic information. BMW Connected is also handy for exporting places and points of interest from other apps, storing them as a destination together with the desired arrival time and seamlessly transferring them to a BMW's navigation system with just a few clicks. And in the case of plug-in hybrid and

BMW i models, it is possible to retrieve relevant data (such as the car's range or battery charge) remotely via BMW Connected before setting off, allowing drivers to plan their journey accordingly.

Further releases up to mid-2017 have also enabled integration of Android devices, smartwatches such as the Samsung Gear S3 and Apple Watch, and the Amazon Echo digital personal assistant. The new version of MINI Connected was brought out in November 2016, shortly before the arrival of BMW Connected in China, a version of BMW Connected geared towards the specific needs of Chinese customers. In the space of just 12 months, BMW Connected – complete with its increasingly advanced in-car integration and range of new services – was launched in 29 markets, where it is now redefining the mobility experience both inside and outside BMW cars with great success. By June 2017, the number of BMW Connected users worldwide had already passed the one million mark.

A flexible backend: the Open Mobility Cloud.

The cross-platform, personalised services associated with BMW Connected are made possible by the Open Mobility Cloud. Its flexible architecture is rooted in the integrated tools and technology provided by the Microsoft Cloud and Azure data platform. This powerful system is capable of processing data and information from all sorts of different sources and then making it available for further use. The Open Mobility Cloud also offers far-reaching capabilities in terms of machine learning and data analysis. Every time it is used, the system gets to know the user a little better and can make forecasts. In so doing, it lays the foundation for the high degree of personalisation and context orientation offered by the services at hand. The platform's flexibility will continue to allow more touchpoints – such as new devices – to be integrated and scaled in the future, along with new partner services.

The BMW ID: portable, digital customer profile provides the gateway into digital services.

The BMW Connected platform is of fundamental importance to the BMW Group's future direction. There are numerous ways in which customers can benefit from highly personalised, intelligent connectivity between their vehicle and digital world, and these are not just limited to the rapidly advancing field of autonomous driving. A portable, digital customer profile – the BMW ID – has a crucial role to play here. This profile will hold the key to linking a connected vehicle with the customer's digital world. It comprises a comprehensive, vehicle-independent profile that the user carries with them at all times on their device, allowing them to transfer it to any BMW. It contains all essential information, such as personalised vehicle settings, for example, the customer's favoured office and entertainment services, and mobility patterns. These then

automatically become available in the next vehicle the driver uses, providing a highly personalised mobility experience. The profile, and therefore the platform, keep learning with every use and can thus become more and more attuned to the customer, their preferences and their requirements.

Personalised digital services: focusing on the user.

The BMW service portfolio will be subdivided into four clusters, whose services address different customer requirements: vehicle-related services (My Car), lifestyle-related services (My Life), mobility-related services (My Journey) and the integration of digital assistants (My Assistant).

Vehicle-related services already encompass a wide range of features and include remote functions, such as operating the automatic climate control system from a smartphone or checking the 3D view of the parked car from the home or office. The vehicle-related services also comprise reminders for the next workshop service and individual financial services (currently only in the UK, further markets to follow). Personalised vehicle settings that every car automatically adapts to on a contextual basis will also form part of these services in the future.

Mobility-related services allow the user to move from A to B as quickly as possible with minimal stress – and not just by car. Included are both relevant, context-sensitive information like “time-to-leave” notifications sent to smartphones and intelligent mobility products, such as navigation from the parked car to a selected meeting point and parking/charging options.

Lifestyle-related services involve incorporating the vehicle into the customer’s digital life, i.e. the seamless and straightforward integration of third-party services (entertainment, news, music), for example. Finally, the inclusion of digital assistants from customers’ day-to-day environments extends the scope of support services on offer, such as the already familiar Concierge Services.

BMW Connected is always up to date, regardless of the vehicle.

Because these services are not built into a vehicle in hardware form but are instead designed as digital services for various devices, every app release via the user’s smartphone adds to the functionality of BMW Connected. As well as new functions, these also include updates to existing services improved in response to customer feedback. As a result, the customer has faster access to other innovations.

3. **New: BMW Connected+.** **Expanding seamless integration into the vehicle.**



At the start of 2017, BMW used its recently launched 5 Series and BMW Connected Onboard – which made its debut in the new model – to showcase the potential unlocked by digital services in the area of personalisation. It represented a major step towards the goal of an overall digital customer profile, providing a personalised mobility experience that not only works in a customer's own BMW, but also in other models from the brand. This is an important connectivity goal for the BMW Group. Building on this, the company is introducing a new era of highly personalised services at the Innovation Days 2017 event in the form of BMW Connected+.

BMW Connected+ provides a digital bridge between smartphones and vehicles. It delivers the next level of in-car personalisation and smartphone content integration on the Control Display. This makes display and operation in the vehicle simpler than ever. At the same time, new services are being introduced that aid individual mobility planning and help users find their way in an ever-more complex world. For the BMW Group, personalisation is the key to really staying in tune with the needs of customers and assisting smartphone usage, both inside and outside the vehicle.

The new services from BMW Connected+.

Send my Routes to Car: Route planning using a smartphone is now easier than ever. After the destination is entered, BMW Connected+ checks whether the car has enough fuel for the journey. If not, BMW Connected+ suggests a suitable fuel stop along the way, which the user can simply add to their route. The route can then be transferred directly to the vehicle. Once in the vehicle, the scheduled stops are displayed and the route can be initiated with a single click.

Share Live Trip Status: With this new feature, the question "What's your ETA" is now a thing of the past. Current location and time of arrival can be shared by the driver with business partners, friends or family. The driver can send a link via SMS to the people selected via Share Live Trip Status at the start of the journey or if there are delays en route. Using this link will display the user's current position on a map, along with the arrival time based on real-time traffic data. The big advantage here is that everyone is kept up to date automatically, allowing the driver to stay focused on arriving safely. There is even an option for

those waiting to receive further SMS updates if there are any changes to the arrival time.

Navigate Door-to-Door: Finding a parking place at the end of a journey does not always mean arriving at the final destination. Navigate Door-to-Door is a feature designed to guide users on the final leg of their journey (Last Mile) and back to their car when they are ready (First Mile). Once the car is parked, the driver will receive a message on the car's display confirming that their smartphone is now ready to provide directions to continue on foot. At the same time, BMW Connected+ sends a push notification to the user's smartphone to initiate navigation on foot.

If the driver has appointments later in the day, the "Time to Leave Notification" function familiar from BMW Connected can let them know the ideal time to set off in order to arrive punctually. This takes into account the time needed to walk to the BMW and can display navigation information on a smartphone or smartwatch.

My Destinations: This feature provides rapid access from any connected device to both contact information in the user's address book and the most recently visited destination stored in the navigation system. This intelligent destination search function is linked with the user's contacts, so choosing the next destination is as simple as entering someone's name and selecting the associated address.

Thanks to BMW Connected Onboard, BMW Connected+ transforms the user's vehicle into a personalised control centre for digital mobility. Once the driver's smartphone has seamlessly connected to the car, they can access selected features via the car's central display.



4. Digital business services. Making journeys more productive with Microsoft Exchange and Skype.

The integration of Microsoft Exchange and availability of Skype for Business (from autumn 2017) provide the key to enhanced in-car productivity and flexibility. These functions allow drivers to use their car as a mobile office and utilise commuting times even more effectively.

BMW is the first manufacturer to offer secure in-car access to e-mail accounts, thanks to Microsoft Exchange. This means users no longer have to pick up their smartphone during a journey in order to access and edit e-mails, calendar entries and contact data. New e-mails and changes to appointments can be shown directly on the Control Display. And users can compose e-mails using voice control and arrange appointments while on the move. What is more, this functionality allows the driver to import addresses from appointment entries directly into their car's navigation system.

Dieter May, Senior Vice President Digital Products and Services: "With BMW Connected we offer a wide range of digital services designed to help users with their daily mobility needs inside and outside of the car. We seek to continuously extend and enhance the customer experience with regard to all aspects of their mobility. The integration of productivity features in-car (like Exchange and Skype for business) and personalized and contextual services will help customers with their day-to-day work and planning while they are on the road."

From autumn 2017, BMW drivers will also enjoy the benefits of Microsoft's unified communication solution Skype for Business. This service is likewise fully integrated into the car and is operated via the iDrive system. Upcoming Skype meetings are automatically identified and flagged up on the Control Display. To take part in a Skype meeting, the user simply presses the iDrive Controller.

"For many of today's drivers, time spent in the car is as much about what you can do as where you can go," said Peggy Johnson, Executive Vice President of Business Development at Microsoft. "Our goal is to transform what it means to be productive on-the-go, and we're excited to work with BMW to help their customers make the very most of their time on the road. By tapping into Skype for Business and our 100 million monthly commercial Office 365 users, BMW is reaching an expansive business audience who can now extend the

productivity tools they rely on into the car, creating a safer and more productive driving experience.”

5. **BMW Technology Office Chicago.** **The epicentre of BMW Connected development.**



The BMW Group runs four Tech Offices in different countries, which are charged with the task of actively shaping the face of the ever-changing digital world. As well as BMW headquarters in Munich, there are offices in Shanghai, Tokyo, Mountain View and Chicago. The BMW Technology Office Chicago is mainly staffed by software specialists who help to design the future of BMW Group digital services by collaborating with the teams in Munich on solutions for the digital future. First opened in 2014, there are now over 150 employees from more than 20 countries working here. A dynamic workplace culture combines with the mindset of a young company to provide the ideal setting in which to devise the mobility experience of tomorrow – one that extends far beyond driving alone.

Chicago as a business base.

Chicago is a magnet for young and highly qualified software developers, the former industrial city having morphed into a well-developed base for technology. The commuter belt of Chicago also supports jobs in the technology sector, making the city a top location for developers and entrepreneurs alike. It is not without reason that numerous big internet companies and renowned tech start-ups have chosen to set up shop here, and they benefit from the outstanding universities in the surrounding area.

Working methods and teams.

Over and above pure software development, the BMW Tech Office Chicago has taken on the primary role of innovation driver. The Product Management, Marketing, Software Development, Interface Design, Operations and Analytics teams work hand in hand. The product team picks up on the latest trends and developments, thinks how to apply them to the automotive context and then devises initial ideas for appropriate services. In the process, the developers focus intently on the desires and requirements that a BMW customer will have of their vehicle, particularly with a view to the future. The resulting concepts are then validated via market and customer research, as well as in close collaboration with BMW headquarters.

The design team works on making the BMW Connected interface as user-friendly as possible. Plus, a variety of analytical tools help to better understand customer behaviour during usage and to obtain further customer feedback for design improvements.

In addition to the development of products, another key aspect of the work carried out by the BMW Tech Office Chicago is the maintenance and continued development of the Open Mobility Cloud. This scalable, cloud-based platform and machine learning capabilities combine to form the digital brain of BMW Connected. The art here lies in processing incoming data for the vehicle, customer use and customer behaviour and then offering appropriate, personalised services across all touchpoints. This can mean in the car, outside it in the form of remote services, and services offered by incorporating partner services or integrating content and infrastructure from third-party providers such as Amazon or HERE.