BMW GROUP

Rolls-Royce
Motor Cars Limited

THE NEXT 100 YEARS

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1. The BMW Group's view of the future.

The BMW Group is celebrating its centenary under the motto "THE NEXT 100 YEARS". Future orientation and adaptability have always defined the BMW Group's identity as a company. Ever since it was founded in 1916, the BMW Group has played an important role in shaping the future of mobility. It has done so by constantly reinventing itself, evolving from an aircraft engine manufacturer to a motorcycle producer and then a carmaker. Today the BMW Group encompasses the BMW, MINI, BMW Motorrad and Rolls-Royce brands, as well as a large number of mobility services and BMW Financial Services.

Throughout its history the company has placed its sights firmly on the future and this has become embedded in the BMW Group's DNA. So for the Centenary it is natural that the Group is focusing primarily on looking to the future and sharing its vision of personal mobility two or three decades from now.

It is both exciting and challenging to imagine how we will live and move around in the future: how will society, the economy, living conditions – and therefore mobility – change? What possibilities will new technologies open up? How will digitalisation and connectivity affect our automotive needs?

To answer these questions, the BMW Group has formulated six central hypotheses for individual mobility in the coming decades, based on key megatrends and future projections.

- Mobility is becoming versatile.
  New forms of mobility will open up countless possibilities for people to get where they want to go. The BMW Group aims to play a part in shaping these future forms of mobility.

- Connectivity is becoming second nature.
  In the future, everything will be connected. The BMW Group firmly believes that digitalisation and digital intelligence are meant to serve people. That is the only way they will permanently enhance our quality of life.

- Mobility is becoming tailor-made.
  Mobility will be increasingly flexible and tailored to individual needs. In the future, customised mobility will automatically ensure that people are able to use the best means of transport and take their preferred route to their destination. The BMW Group will offer carefully coordinated products and services to achieve this.

- Technology is becoming human.
  Technologies are getting smarter. The BMW Group believes that innovations are only beneficial to humans if they are simple and user-friendly. In its vision, technologies must be able to learn from and adapt to people, so that technology seems less technical and more human and familiar.

- Energy is becoming emission-free.
  In the future, energy will increasingly come from renewable sources. The BMW Group has a clear vision of environmentally-compatible vehicles built using renewable energies and recycled without generating emissions. It is working towards becoming a wholly sustainable company.

- Responsibility is becoming diverse.
  In the future, it will become even more important for global companies like the BMW Group to take responsibility for the environment, but also for the people directly or indirectly in its sphere of activity. One aspect – concerning both the company's international workforce of more than 100 different nationalities and people connected with its various locations – is to promote intercultural exchange and improve lives. The BMW Group already supports more than 200 environmental and social projects in over 42 countries engaging in various projects involving its associates and local communities to maximize its impact in the future. (To find out more about Corporate and Intercultural Responsibility at the BMW Group, visit the PressClub at: www.bmwgroup.com/responsibility).

These six focus areas comprise the BMW Group's view of the future.
They also form the basis and inspiration for the design of the Vision Vehicles the company is unveiling to the public to mark its centenary.

Each BMW Group brand interprets the mobility of the future in a way that reflects its own particular values:

The BMW VISION NEXT 100 provides a glimpse of what "Sheer Driving Pleasure" could look like in the future.

The MINI VISION NEXT 100 offers a completely individualised, permanently available form of urban mobility.

The Rolls-Royce VISION NEXT 100 epitomises bespoke automotive luxury.

Future riding pleasure with the BMW Motorrad VISION NEXT 100 promises limitless freedom.

2. BMW Group's VISION NEXT 100 VEHICLES.

2.1. BMW VISION NEXT 100: "Sheer Driving Pleasure" of the future – what will it look like?

In the not-too-distant future, most vehicles will probably be completely self-driving – people will get around in robots on wheels. So, given these developments, how will we justify the existence of vehicles by BMW, a brand for whom the individual and Sheer Driving Pleasure are the focus of everything? And how will BMW's brand values translate into the future?

In developing the BMW VISION NEXT 100, the main objective was to create not an anonymous vehicle but one that is highly personalised and fully geared to meet the driver's every need – because the very emotional connection between a BMW and its driver is something we want to retain. For the BMW VISION NEXT 100, the design team specifically took into account all the trends and technological developments that will be most relevant to BMW in the decades ahead. But they also took many of their cues from innovations and designs of the past. The key factor throughout, however, was something that has always been typical of the BMW brand: the desire to be uncompromising in its future focus on technologies and customer value.

Adrian van Hooydonk, Head of BMW Group Design: "If, as a designer, you are able to imagine something, there's a good chance it could one day become reality. So our objective with the BMW VISION NEXT 100 was to develop a future scenario that people would engage with. Technology is going to make significant advances, opening up fantastic new possibilities that will allow us to offer the driver even more assistance for an even more intense driving experience. My personal view is that technology should be as intuitive as possible to operate and experience so that future interactions between human, machine and surroundings become seamless. The BMW VISION NEXT 100 shows how we intend to shape this future."

Four Proposals underpinning the BMW VISION NEXT 100:

A genuine BMW is always driver-focused.

In recent months and years, the greatest current trend in the automotive industry has become so widespread that it's no longer a question of "if" but "when": autonomous driving. The BMW Group also believes that BMW drivers will be able to let their cars do the work – but only when the driver wants. The BMW VISION NEXT 100 remains a genuine BMW, offering an intense experience of Sheer Driving Pleasure.

Artificial intelligence and intuitive technology become one.

Moving into the future, vehicles will be fully connected and digital technology will become so normal that it will permeate almost every area of our lives. Increasing digitisation will lead to the physical and digital worlds merging more and more. Artificial intelligence will learn from us, anticipating many of our wishes and working in the background to perform the jobs we delegate to it. The way humans and technologies interact will be transformed: screens and touchscreens will be replaced by more intuitive forms of human-machine communication and interaction. Better yet: technology will become more human.

New materials open up breathtaking opportunities.

In the future, how will cars be manufactured? At some point, presses that punch out hundreds of thousands of steel parts may well become obsolete - the use of carbon may already be a first indication of the sea-change that is imminent in the world of automotive materials and production. Technologies such as rapid manufacturing and 4D printing will produce not components or objects but intelligent, networked materials and could soon replace conventional tools to open up unimagined possibilities in design and engineering.

Mobility will remain an emotional experience.

Vehicles by BMW have never been purely utilitarian or merely a means of getting from one place to the next. Far more, a BMW is about looking to the next bend in the road, feeling the power of the engine and enjoying the sense of speed; it's about the sensory experience, the adrenaline rush or that intimate moment at which a journey begins, be it for a lone driver or one travelling with a close friend or loved one. Moving into the future, that's not set to change – because the emotional

experience of mobility is firmly fixed in our collective corporate memory. By keeping the driver firmly in the foreground, the BMW VISION NEXT 100 will heighten this emotional experience in an unprecedented way.

BMW VISION NEXT 100: A vehicle for future mobility.

- From driver to "Ultimate Driver" – through digital intelligence.
- "Alive Geometry" enables intuitive driver-vehicle interaction.
- "Boost" and "Ease" driving modes enable driver- or vehicle-controlled operation.
- "Companion": The intelligent digital partner connects driver and car.
- Trademark BMW exterior.
- Materials of the future.

From driver to Ultimate Driver – through digital intelligence.

In the future, BMW drivers will still want to spend most of the time they are in their car at the wheel. In the BMW VISION NEXT 100, the driver will remain firmly in the focus, with constant connectivity, digital intelligence and state-of-the-art technologies available for support. But that's not all: the BMW VISION NEXT 100 will turn the driver into the Ultimate Driver. So even though the world may well be changing, Sheer Driving Pleasure is here to stay – and will be more intense than ever before.

In designing the BMW VISION NEXT 100, the starting point was the interior. In the years ahead, the driver's wellbeing will become increasingly important and rather than merely feeling they are in a machine that drives itself, they should sense that they are sitting in one that was specifically designed for them. This idea gave rise to an architecture in which the interior appears extremely spacious given the overall size of the vehicle; the BMW VISION NEXT 100, of course, retains the instantly recognisable athletic silhouette of a BMW saloon.

The design of the interior permits various modes of operation: Boost mode, in which the driver is at the controls, and Ease mode, in which the driver can sit back and let the vehicle take over. In Ease, the vehicle becomes a place of retreat with plenty of space, agreeable lighting and a comfortable atmosphere. In Boost, the driver takes over and benefits from the subtle and intuitive support offered by the vehicle. All the time, the vehicle is learning more and more about the person at the

wheel, thanks to its sensory and digital intelligence which the BMW Group calls the Companion. The Companion progressively learns to offer the right kind of support to transform the driver into the Ultimate Driver.

A very important element of the Vision Vehicle is another innovation known as Alive Geometry, the likes of which have never before been seen in a car. It consists of a kind of three-dimensional sculpture that works both inside and outside the vehicle.

Alive Geometry enables driver-vehicle interaction.

Alive Geometry consists of almost 800 moving triangles inside the cabin which are set into the instrument panel and into certain areas of the side panels. They work in three dimensions, communicating very directly with the driver through their movements, which are more like gestures than two-dimensional depictions on a display. Even the slightest peripheral movement is perceptible to the driver. In combination with the Head-Up display, Alive Geometry uniquely fuses the analogue with the digital.

The triangles work in much the same way a flock of birds in controlled flight, their coordinated movements act as signals that are easily comprehensible to those inside the car. Combined with the Head-Up display, they involve the driver in a form of preconscious communication, where an intuitive signal predicts an imminent real-time event. Various approaches can already be seen today that appear to confirm the feasibility of this solution. Rapid prototyping and rapid manufacturing, for example, are gaining importance all the time and are expected to be commonplace 30 years from now, meaning that in the future it will become feasible to produce far more complex and flexible forms. This is why in the context of the BMW VISION NEXT 100, the BMW Group refers to 4D printing, a process which adds a fourth level to components: the functional one. In the years ahead, printed parts manufactured in this way will directly integrate functions which today have to be designed and produced separately before being incorporated into the whole.

At the moment, the digital world is strongly linked to displays; the next step will be organic LEDs, in other words, displays that can be shaped and contoured. However the Vision Vehicle suggests there will at some point be no more displays at all. Instead the entire windscreen will serve as a giant display, directly in front of the

driver. In the future the digital and physical worlds will merge, as shown with the example of the Alive Geometry and its interaction with the digital Head-Up display on the windscreen.

Boost and Ease driving modes for driver- or vehicle-controlled operations.

In Boost and Ease mode alike, the elements and technologies of the vehicle make for the most intense or relaxed driving experience, depending on what is required. Transitioning between modes is impressive and perfectly orchestrated, and Alive Geometry remains relevant throughout. In Boost, when the driver is concentrating fully on the road, Alive Geometry highlights the ideal driving line or possible turning point and warns of oncoming vehicles. Rather than making the driver drive faster, this kind of support sets out to make them drive noticeably better. In addition, intuitive feedback has a more physical and immediate impact than a robotic voice or instructions on a screen. In Ease mode, on the other hand, Alive Geometry is more discreet in its movements, informing occupants about the road ahead and any acceleration and braking manoeuvres that are about to happen.

In Boost mode, the entire vehicle focuses on the driver, offering intelligent support to maximize the driving experience. The seat and steering wheel change position, and the centre console moves to become more strongly oriented toward the driver. As the journey proceeds, the driver can interact with the vehicle via gesture control.

The contact analogue BMW Head-Up display of the future uses the entire windscreen to communicate with the driver. In Boost mode, it focuses exclusively on what really matters to the driver: information such as the ideal line, turning-point and speed. In addition, full connectivity, intelligent sensors and permanent data exchange allow the Head-Up display to generate a digital image of the vehicle's surroundings. In foggy conditions, for example, this means the driver can benefit from information such as vehicles crossing ahead, before they actually come into sight. In addition, by learning more and more about the driver, the system continuously improves, concentrating on creating at all times the most intense and personal driving experience possible.

The transition to Ease mode brings about a complete change of interior ambience. The steering wheel and centre console retract and the headrests move to one side to create a relaxed and welcoming atmosphere. The seats and door panels merge

to form a single unit, allowing the driver and passengers to sit at a slight angle. This makes it easier for them to face each other and sit in a more relaxed position for easier communications. Meanwhile, the Head-Up display offers occupants personalised content along with the information and entertainment they desire.

Depending on the driving mode, the focus of the vehicle changes, concentrating on essentials for the driver in Boost mode, and the surroundings and atmosphere in Ease mode, highlighting the impressive landscapes or buildings of interest that the car is passing by, for instance.

Whether the vehicle is in Boost or Ease mode is also clearly apparent to other road users as the trademark kidney grille, double headlights and L-shaped rear lights act as communication tool. Their different colours of light indicate which mode the vehicle is currently in.

Companion: The intelligent digital partner connects driver and car.

The Companion is symbolised by a small sculptural element which represents the driver-vehicle connection. Shaped like a large, cut gemstone, it is positioned in the centre of the dashboard, just beneath the windscreen, where it symbolises the intelligence, connectivity and availability of the BMW VISION NEXT 100. It also represents the constant exchange of data: the more it learns about the owner and their mobility habits, the smarter it becomes. At some stage it knows its drivers well enough to automatically perform routine tasks for them and offer suitable advice when needed. Irrespective of the vehicle itself, constant learning makes the Companion increasingly valuable to its owner.

The Companion also plays an important role in driver-vehicle communications when the car transitions from Boost to Ease mode. While the driver concentrates on the road in Boost mode, the Companion remains flat in the dashboard. But when the BMW VISION NEXT 100 takes control in Ease, it rises up to create an interface with the windscreen. A signal light tells the driver that the car is ready for fully autonomous driving. For other road users, the Companion has a similar function, signalling through its own light as well as that of the vehicle that the car is operating in automated mode. In certain traffic situations, the Companion is in visual contact with other road users, helping pedestrians to cross the road by means of the green light gradient on the front of the vehicle.

Trademark BMW exterior.

The design of the BMW Vision Vehicle is characterised by a blend of coupé-type sportiness and the dynamic elegance of a sedan. At 4.90 meters long and 1.37 meters high, it has compact exterior dimensions. Inside, however, it has the dimensions of a luxury BMW sedan.

The large wheels are positioned at the outer edges of the body, giving the vehicle the dynamic stance that is a trademark of BMW. When it comes to aerodynamics, exterior Alive Geometry contributes to an outstanding effect: when the wheels swivel as the vehicle is steered, the bodywork keeps them covered as if it were a flexible skin, accommodating their various positions. The innovative design of the BMW VISION NEXT 100 gives it an extremely low drag coefficient of 0.18.

The exterior of the vehicle is copper in colour, designed to underscore the idea that BMW vehicles of the future should appear technical yet still have a warmth about them – as symbolised by the close links between the vehicle and its driver.

This relationship begins as soon as the driver approaches the vehicle: intelligent sensor technologies automatically open its wing doors. To give the driver more space to enter and exit, the steering wheel is flush with the dashboard. Once seated, the full range of systems is activated by tapping on the BMW logo in the middle of the dashboard. The door closes, the steering wheel comes forward, and the driving experience begins.

Materials of the future.

The designers of the BMW VISION NEXT 100 primarily used fabrics made from recycled or renewable materials. The visible and non-visible carbon components, such as the side panels, are made from residues from normal carbon fibre production. In the future, the choice of materials will become even more important throughout the design and production process.

With time, other new materials will also be added into the mix, allowing different vehicle shapes to emerge. To save resources and support more sustainable manufacturing, less use will be made of wood and leather while innovative materials and the consequent new possibilities in design and production gradually come to the fore. This approach is already being exemplified by the use of high-quality

textiles and easily recyclable mono-materials and the elimination of leather in the interior of the BMW VISION NEXT 100.

2.2. MINI VISION NEXT 100: “Every MINI is my MINI”.

Today’s MINI is the perfect premium compact car for the modern city. Digitalisation and connectivity are increasingly changing the way we get around on a daily basis – and this change is taking place most rapidly and noticeably in urban areas. The MINI VISION NEXT 100 is MINI’s answer to several key questions on urban mobility over the years ahead. In the cities of the future, will there be space for a car which engages at an emotional level? What will become of the “clever use of space” principle that underpins MINI? And how can MINI respond to a world becoming ever more digitalised and interconnected?

The core philosophy behind the MINI VISION NEXT 100 is the thoughtful use of the planet’s resources in providing personal mobility. The motto “Every MINI is my MINI” describes a particular take on car-sharing. In the future, fans of the brand will be able to call on a MINI tailored to their personal requirements where ever they are, day or night. The MINI of the future will be available 24/7, able to pick its driver up from their desired location in a fully automated way and will adapt itself to the driver’s individual tastes, interests and preferences. At the heart of this concept is fully connected digital intelligence.

Adrian van Hooydonk, Senior Vice President BMW Group Design, describes MINI’s vision for the future: “MINI looks to offer smart and bespoke mobility in cities that engages all the senses. And in the future, you might not actually have to own a vehicle to enjoy the benefits.”

Clever approaches to future mobility with MINI:

- “Digitally Mine” – where every MINI becomes my MINI.
- The “Cooperizer”: a link between the driver and digital intelligence.
- “Urban go-kart”: small, clever, nimble. The hallmark driving fun of a MINI will remain intact in the years ahead.
- Novel use of sustainable materials in the interior.
- Experience sharing – users become part of a MINI community.

“Digitally mine” – where every MINI becomes my MINI.

In the future, as now, people will be attracted in great numbers to MINI cars and the attitude to life associated with them. But it may not actually be necessary to own a MINI to be part of the action. The design team’s challenge: how could a MINI be

widely and instantly adaptable – making the driver feel it is their car, tailored precisely to their own taste – available whenever and wherever they need it?
The MINI VISION NEXT 100 is wrapped in a discreet, silver skin. The MINI designers refer to it as a "blank canvas". How that canvas is used varies according to the individual user, their mood and the situations they encounter. Even the colour of the roof and the lighting mood in the interior respond in kind. The MINI uses projections adapted to the driver in terms of colour, graphics and content to create a personalised experience and customised package of on-board information.

The Cooperizer forms a connection between the driver and digital intelligence.

The Cooperizer is the name the MINI VISION NEXT 100 gives to the centrally-positioned circular instrument that has become such a signature feature of MINI cockpits. In the MINI VISION NEXT 100 it illuminates like a kaleidoscope. The colours and patterns it generates symbolise the car's multi-faceted digital intelligence, which allows it to select a personalised setting for each driver, encompassing entertainment, communications and autonomous-driving options. On the move, the driver can influence the Cooperizer's decision-making, as the rotary controls allow adjustments to the interior ambience and driving mode. So the car can be adapted to give a perfectly personalised driving experience, whether driven conventionally or autonomously. Pressing the "Inspire Me" button brings another special Cooperizer trick into play. Here, the MINI checks downloaded user data to select information of interest to the driver and provide them with potential sources of inspiration. For example, the MINI VISION NEXT 100 might suggest the MINI set-up configured for an artist the driver admires and whose exhibition they have recently visited. Or it could recommend a challenging, twisting route to the outskirts of town and switch to John Cooper Works performance mode.

The urban go-kart – small, clever, nimble. MINI will continue to offer the driving fun we know and love in the future.

In the future, driving in a MINI must still be fun, to the extent that drivers will prefer to drive themselves – as often as possible. The mechanical experience of speed and the feeling of nipping swiftly through twists and turns are part of what makes a MINI a MINI. But it doesn't stop there. In a future world of self-driving cars, this side of motoring may have an even more significant, even more special role. Various aspects of the MINI VISION NEXT 100 will take the go-kart feeling to another new level. Cleared of many controls and screens, the interior has a pure, uncluttered

look. And the glass front end opens up a dynamic view of the road. Here, augmented reality displays show the route or ideal driving line, heightening the driving sensation.

In addition to these dynamic elements, dreaming up clever details and creating maximum interior space within the smallest possible footprint are other MINI essentials. The efficiently-packaged, zero-emission drive system and the reduced need for crash zones in the future enable a compactness of body not so far removed from the first MINI back in 1959. The generous feeling of cabin space is enhanced by a full-width bench seat and pedals that slide with the steering wheel to adjust their position. The steering wheel is always there, but the option remains, to ask the car to drive itself; perhaps there are things you'd rather do during a journey when the driving environment is tedious. Autonomous driving plays an important role in the MINI VISION NEXT 100, allowing it to travel occupant-free to a charging station, cleaning service, parking space or the next user. To switch from driving themselves to autonomous driving, the driver simply moves the steering wheel into the central area between themselves and the front passenger. In the process, those on board enjoy greater freedom of movement and getting in and out of the car in busy city centres is that much easier. The single-section bench seat and a full-width footwell, uninterrupted by a centre console, also help this, allowing passengers to gain rapid access from both sides of the car – without having to decide in advance where they would prefer to sit. When dynamic driving is the order of the day, active elements within the seat provide lateral support for the driver and front passenger. Park the car in a tight spot, and the doors automatically open as wide as possible within the restricted confines.

Innovative use of sustainable materials.

Making responsible use of resources is key in the selection of materials for the MINI VISION NEXT 100. These materials should retain their high level of perceived quality over many years, age stylishly and offer a special tactile experience. As digitisation increases, analogue qualities and experiences will become more important. With the more intensive use of a shared car, interiors will need to be much more hard wearing. In addition to the modern materials made from recycled plastic and aluminium in the floor area, roof lining and side panel trim, for example, the MINI interior designers used materials less commonly found in car cabins, such as brass, basalt and cellulose. The wraparound carrier and information strip, with its

mount for the sliding steering wheel, and the Cooperizer with its thin brass structure are good examples here. The designers made the storage net behind the steering wheel from lightweight basalt, while the lower section of the seat is trimmed in a recycled cellulose material similar to paper. This novel use of materials included deliberately allowing a patina to develop through use and ensuring they retain along-lasting and sophisticated appearance. When it comes to the natural look and feel of surfaces, the designers have embraced the irregularities inherent in the chosen materials and processing methods. That also applies to the seat covers in knitted Alcantara – a robust, somewhat iridescent material. The designers have steered clear of traditional interior materials like wood and leather altogether. Another example of analogue design in the MINI Vision Vehicle can be found in the wheels, whose rotation generates an "Ombro Cinema" effect: This involves the outer surface of the wheel not moving and only a disc behind it turning with the tyre. The even movement of a shimmering graphic – again brass-coloured – can be observed through openings in the outside of the wheel. The idea is for each wheel to look like a piece of a mechanical jewellery.

Experience sharing – the user becomes part of a MINI community.

Sharing cars, homes and goods is ever-more common, as digitalisation, connectivity and artificial intelligence make processes simpler and more automated. The MINI VISION NEXT 100 can bring together a community of likeminded people, with a shared MINI lifestyle in common. Everybody benefits from everybody. And mobility opens up inspirational experiences yet stands by its sustainable approach and prudent use of resources.

For example, a MINI user in the future is interested in a certain type of art and a friend gets hold of some last-minute tickets to a preview for an exhibition they might like. The Vision Vehicle identifies what's involved, and coordinates and organises the whole excursion. The drive itself becomes part of a perfectly arranged service. MINI calls this vision of the future experience sharing.

Head of MINI Design Anders Warming sums up the most important aspects of the car: "The MINI VISION NEXT 100 shows how MINI's unique take on the world could look in the future. The driving experience remains the emotional centrepiece, with effortless and seamless services grouped around it."

2.3. Rolls-Royce VISION NEXT 100.

Rolls-Royce epitomises automotive luxury in a way that no other brand can. Founded in 1904, its products rose to pre-eminence around the world in a matter of years – in keeping with Sir Henry Royce's motto: "Strive for perfection in everything you do. Take the best that exists and make it better. When it doesn't exist, design it."

Adrian van Hooydonk, Head of BMW Group Design: "In celebration of this pioneering spirit, the Rolls-Royce VISION NEXT 100 has been designed as the ultimate expression of the future of super-luxury mobility. It is an enlightening vision of the fascinating possibilities of Rolls-Royce Motor Cars in the future."

The Rolls-Royce VISION NEXT 100 is the first purely visionary vehicle in the 112-year history of the marque.

In creating it, the team focused on the following questions:

- What is the future of luxury?
- How might the exclusive character of a Rolls-Royce translate into the future?
- How will the demands of the Rolls-Royce clientele change? And how might Rolls-Royce even exceed their expectations in its constant quest for perfection?
- Could other traditional Rolls-Royce characteristics – such as precise craftsmanship, a pioneering spirit and a love for perfection – combined with future technologies and trends set new standards for luxury in decades to come?
- How can we ensure a journey in a Rolls-Royce remains as unique an experience in the future as it is today?

Rolls-Royce Motor Cars already realises the most diverse customer wishes and offers virtually unlimited scope for personalising its vehicles. Over the years and decades ahead, however, the opportunities will become even more extensive, and customers will be able to commission their personal Rolls-Royce into a genuine one-off piece. In terms of technology, the Rolls-Royce VISION NEXT 100 is based on an advanced lightweight platform equipped with a high-performance electric

drive. From the wheelbase to the design of the body, its various specifications and equipment can be tailored specifically to suit the needs of the individual customer.

The Rolls-Royce design team expects that further progress in composite materials and technologies will have a decisive influence on how production can be customised in the future. Advances will also unlock new creative possibilities for the brand to meet the discerning wishes of its customers and achieve its goal of producing the bespoke automotive equivalent of haute couture.

The Rolls-Royce VISION NEXT 100 incorporates just some of the design options that will be possible in the future.

It focuses on the following key aspects of a new dimension of automotive luxury:

- The “Personal Vision”: One of a limitless number of possible personal visions of a Rolls-Royce of the future.
- The “Grand Sanctuary”: The vehicle interior as a private retreat.
- The “Effortless Journey”: Guided by “Eleanor”, the passenger’s virtual assistant.
- The “Grand Arrival”: Stepping out at your destination in ultimate elegance.

The Personal Vision: One of a limitless number of possible personal visions of a Rolls-Royce of the future.

The Rolls-Royce VISION NEXT 100 is but one of a limitless number of possible personal visions of a Rolls-Royce of the future. Indeed, in an evolution of the Rolls-Royce experience of today, the customer’s taste will shape exactly how his or her Rolls-Royce will look and how it will be configured.

In the spirit of the great coachbuilt cars of the past, Rolls-Royce will create the chassis of the future, hand-built from the most advanced materials and powered by a zero emissions powertrain. Innovative manufacturing technologies will enable customers to involve themselves in the style and proportion of their personal Rolls-Royce vision. They will be able to commission their very own cars shaped by Rolls-Royce designers to their personal tastes – unique bespoke masterpieces curated as a fingerprint of their owner.

The Grand Sanctuary – The vehicle interior as a private retreat.

In a Rolls-Royce, the well-being and desires of the occupants are all-important. For this reason, the design of the interior is the central starting point: it is intended as a space in which passengers can enjoy their very own style of luxury. The vehicle interior becomes a personal retreat.

In creating the interior, the designers opted for a clear-cut hierarchy of lines, as well as sustainable, authentic materials and subtle lighting. These combine to create a peaceful oasis, the ideal atmosphere in which to relax.

With this approach, the designers were able to create an inviting, purist space in which the intrinsic beauty of the materials shines through.
The Rolls-Royce VISION NEXT 100, for instance, incorporates warm tone Macassar wood, a carpet of hand-twisted silk on the floor and further extraordinarily soft silk on the upholstery.

In the Rolls-Royce VISION NEXT 100 a panorama window of generous proportions provides outstanding visibility. Designed to “waft” along fully autonomously, the driver’s seat, steering wheel and instruments are superfluous in this model; what remains is a completely new sense of space. Cocooned in their own private haven, passengers have just a central analogue timepiece below the panorama window as a reminder that time not lost is the highest form of luxury.

The Effortless Journey: Guided by Eleanor, the passenger’s virtual assistant.

In creating the Rolls-Royce VISION NEXT 100, the designers also sought to keep the presence of technologies as subdued as possible while at the same time ensuring full connectivity. The vehicle is controlled by a virtual intelligence which fulfils the passenger’s every need. This virtual assistant is embodied in a digital representation of the Spirit of Ecstasy, which appears on the full-width transparent OLED display. It is named after Eleanor Thornton, the model who inspired sculptor Charles Robert Sykes’ iconic Rolls-Royce bonnet ornament. The more time Eleanor spends on the road with a passenger, the more she learns about their interests and needs – their favourite restaurants, tastes in art and favourite routes, for instance – and about the preferences and desires of all the other vehicle occupants as well, of course. Using speech interaction, the passengers can call upon her services to tailor their journey as desired.

The Grand Arrival – Stepping out at your destination in ultimate elegance.

From the outside, the Rolls-Royce VISION NEXT 100 is a vision of timeless aesthetics. Measuring 5.9 m in length, its silhouette radiates powerful elegance. At the same time, its coupé-style forms and the free-standing wheel arches on either side of the Pantheon radiator grille lend dynamism and lightness to its outward appearance.

The elegance and lightness of the body is further underscored by the paintwork “Crystal Water” and the Spirit of Ecstasy, made from hand-cut lead crystal and illuminated from inside.

Thanks to its impressive exterior design, the Rolls-Royce VISION NEXT 100 will attract attention wherever it arrives. Its charismatic presence is further enhanced by the way the passengers alight: in a generous gesture, the roof and coach door open to reveal the interior of the vehicle. Passengers simply stand up and gracefully step out. The spectacle is additionally underscored by light projections, which create a “red carpet” showing the way out and turn every arrival into a Grand Arrival. Should the need arise, two umbrellas integrated into the doors are available to protect passengers from the elements. Rolls-Royce bespoke luggage can be stowed in the front of the Rolls-Royce VISION NEXT 100, where there is ample storage space. An intelligent mechanism opens a hatch in the side of the car and presents the luggage to the waiting hands of the porter.

Giles Taylor, Design Director Rolls-Royce Motor Cars: “With the Rolls-Royce VISION NEXT 100 we were very mindful not to dwell on the past. We wanted to be as innovative as possible and at the same time transcend the design history of the marque.”

2. 4. BMW Motorrad VISION NEXT 100:
"The Great Escape."

"The BMW Motorrad VISION NEXT 100 embodies the BMW Group's vision of biking in a connected world – an analogue experience in a digital age. Motorcycling is about escaping from the everyday: the moment you straddle your bike, you are absolutely free. Your bike is The Great Escape", says Edgar Heinrich, Head of Design at BMW Motorrad, outlining the core principles underlying his brand's Vision Vehicle.

The BMW Motorrad VISION NEXT 100 stands for the ultimate riding experience. Liberated from the need to wear a helmet and protective clothing, the rider is able to enjoy the forces: acceleration, wind and nature as in touch with the surrounding world, savouring every moment. The design of the BMW Motorrad VISION NEXT 100 represents the essence of the motorcycle: the perfect synthesis between human and machine. Every detail is of the highest quality and the design incorporates all the most striking visual aspects of BMW Motorrad bikes across the ages. These elements, however, have a contemporary twist, both visually and in terms of function.

The iconic elements in the BMW Motorrad VISION NEXT 100 make it immediately recognisable as a "genuine BMW" and include the black frame triangle, white lines and classic, boxer engine forms. The bike itself, however, is powered by a zero-emissions solution.

The BMW Motorrad VISION NEXT 100 unites the past of the BMW Motorrad brand with its future and is a powerful expression of both.

The frame triangle – a classic icon reinvented.

The black frame triangle of the BMW Motorrad VISION NEXT 100 is a deliberate reference to the first ever BMW motorcycle, the R32, made in 1923. On the vision bike, however, it has been reinterpreted to form a functional sculpture linking the front and rear wheels with a dynamic sweep. Bearings and joints are nowhere to be seen; instead the frame appears as a single, integrated whole.

Viewed from the side, the frame of the BMW Motorrad VISION NEXT 100 lends it the character of a naked bike, with ergonomics to match and a seat in the roadster

position. The clever arrangement of surfaces protects the rider from wind and weather as effectively as a full fairing. The surface of the frame is covered in matt black textile, its silky sheen and fine lines highlighting the characteristic forms and representing a contemporary reinterpretation of this classic BMW detail. The BMW logo is optimally displayed on the dark frame. It is illuminated in the familiar blue and white colours while driving.

"Flexframe" – frame-assisted steering.

The Flexframe appears as a single, integrated whole that extends from the front to the rear wheel of the BMW Motorrad VISION NEXT 100. Being flexible, it allows the bike to be steered without the various joints found on today's motorcycles. Turning the handlebar adjusts the entire frame, changing the direction of the bike. The amount of strength needed to steer depends on the situation: at standstill, the Flexframe allows a light steering whereas at higher speeds it remains very rigid.

"Powertrain" – inspired by the BMW boxer engine.

In the middle of the triangle frame sits a style feature and historical reminder: the power unit. Designed and created in the image of the traditional BMW boxer engine, it actually consists of a zero-emissions drive unit. Its outward appearance changes depending on the circumstances: when the bike is resting, the power unit is compact, extending outwards only when the bike sets off, to enhance aerodynamics and protect the rider from the elements. Its polished aluminium finish confirms the superior quality of this component.

Minimalist form, maximum quality of details.

The slender-looking BMW Motorrad VISION NEXT 100 clearly expresses its qualities as a riding machine. The front is minimalist in design and enhanced with high-quality details. Integrated into the frame above the front wheel is a large, metal reflector incorporating the two vertically positioned, U-shaped elements that make up the daytime running light. It also acts as a wind deflector and, in combination with the small, integrated windshield, helps to optimise the air flows.

Body elements such as the seat, upper frame cover and wings are made of carbon.

Beneath the seat shell, two fine, red, illuminated strips form the rear light and indicators - picking up on the typical double-C form of the rear lights on today's BMW Motorrad bikes – but with a new, futuristic twist.

Damping is provided by the tyres, whose variable tread actively adjusts to suit ground conditions and ensure the best possible grip in any situation.

Analogue elements in the digital age.

Overall, displays, cables and buttons are a rare sight on the BMW Motorrad VISION NEXT 100. But amid the clear forms of its front is one element that immediately stands out: a red rocker-switch on the right-hand end of the handlebar. This obviously mechanical element blocks or releases the throttle grip and is a homage to the analogue days of original biking.

The hand levers with their outward-facing joints are also a reminder of days gone by.

BMW Motorrad VISION NEXT 100: What kind of world will be home to the motorcycle of the future?

"Normally, when we develop a motorcycle, we tend to think 5 to 10 years in advance. On this occasion, we looked much further ahead and found the experience especially exciting. There are some very attractive prospects. I firmly believe the BMW Motorrad VISION NEXT 100 sets out a coherent future scenario for the BMW Motorrad brand", explains Edgar Heinrich.

When designing the BMW Motorrad VISION NEXT 100, the team was thinking decades in advance. In tomorrow's world, connectivity and digitalisation will be all-encompassing. Most vehicles will be driverless, and life will be organised largely by digital services. More and more of the world's population will be living in urban areas.

Digital technologies for an analogue experience.

Building on the benefits of the digital world, the BMW Motorrad VISION NEXT 100 takes the analogue riding experience to a completely new level. The unique sensation of freedom is made possible by intelligent connectivity between rider, bike and the outside world – a combination that also allows the prediction of critical

situations on the roads. In conjunction with the active assistance systems, these connected elements help keep riders of the BMW Motorrad VISION NEXT 100 in complete control of their ride. As well as anticipating what lies ahead and alerting the user when action is needed, they offer active rider protection and will consign the helmets and body protectors of today to the history books.

"Self-balancing" – active, intelligent assistant systems.

In certain situations, the active assistance systems of the future will also enhance stability and safety by automatically balancing the motorcycle, both out on the road and when stationary. Novice riders will benefit from additional guidance in all riding situations and from a bike that will never tip over.

The BMW Motorrad VISION NEXT 100 rights itself while even stationary, remaining upright when the rider has dismounted. The balancing systems also work out on the road to ensure a particularly agile and dynamic riding experience with even lighter handling, which seasoned riders will appreciate, and all the benefits of assistance systems to enhance their capabilities even further.
The BMW Motorrad VISION NEXT 100 helps every biker become more proficient and enjoy an even more positive riding experience. Every trip becomes a journey of freedom, from beginning to end.

The "Digital Companion" – connected. Ubiquitous. Discreet.

When combined, the BMW Motorrad VISION NEXT 100 bike and the special rider's gear that has been designed to accompany it form a single functional unit: a Digital Companion that provides the situational information and active support the rider needs. But because biking is essentially about the experience, the Digital Companion remains in the background: though constantly active, it works away unnoticed until required to issue an alert via the user interface or provide active assistance, for instance. Unless the rider or circumstances require it, the Digital Companion remains silent.

"A key point with the BMW Motorrad VISION NEXT 100 was to make sure the constant digital presence doesn't undermine the analogue riding experience. The display and operating concept works so subtly that the rider can enjoy an entirely natural biking experience, trusting the bike completely and enjoying complete freedom and ease. As interface designers, our job is to deliver the right amount of

the right information at the best possible time and place", explains Holger Hampf, Head of User Experience at the BMW Group.

The visor – the right information at the right time.

Information exchanges between rider and bike take place largely via the visor. This essentially consists of a pair of data glasses that extends across the wearer's entire field of vision. As well as providing wind protection, it shows relevant data in one of four designated display areas. These are controlled by the rider's eye movements: looking up or down changes the content that appears, and looking straight ahead switches the information off completely, leaving the rider to focus even more fully on biking experience. Information is only projected onto the visor on request, or to alert the rider to the fact that action is needed.

"The bike has the full range of connected data from its surroundings and a set of intelligent systems working in the background, so it knows exactly what lies ahead. By collating the data it has gathered, it can suggest ideal lines and banking angles, or warn riders of hazards ahead," Hampf continues. When suggesting lines and angles, the Digital Companion appears in the lower third of the field of view, represented by an upturned triangle from which two horizontal lines extend outwards. Like the display in an aeroplane cockpit, this symbol indicates the current banking angle and ideal lines. If the bike's current position does not match what is suggested, the rider can correct it as necessary. If he or she responds too late or not at all, the bike will correct itself. The Digital Companion's advice not only helps novices to learn more about what they and their bikes can do. It also supports experienced riders by allowing them to challenge themselves and continuously improve their skills.

Looking upwards activates the rear-view function in the visor, allowing the rider to see what is going on on the road behind. Lowering the eyes to normal levels opens a menu from which the rider can select an option by pointing a finger. Looking further down opens the map view showing the rider's chosen route.

Smart. Active. Flexible – rider's equipment.

The rider's gear accompanying the BMW Motorrad VISION NEXT 100 is integral to the unique overall experience. In classic black and white, the airy suit enhances the sense of freedom and is both fashion statement and weather-wear. Depending on

conditions, it warms or cools the user. While the diagonal zipper across the chest is reminiscent of traditional motorcycle clothing, the flexible, banded structure of the suit and shoes is inspired by the muscle areas of the human body and provides body support and relief whenever needed.

At higher speeds, the neck section inflates to provide extra support for the upper vertebrae and improve overall comfort. Variable openings offer additional ventilation. Unlike present-day suits, however, the futuristic outfit for riders of the BMW Motorrad VISION NEXT 100 offers no safety features, because the bike's intelligent assistance systems make them superfluous. Instead, sensors in the suit keep track of the wearer's pulse rate and body temperature and provide the right level of heat or cold. The suit also delivers navigation instructions via the vibrating elements in the arms and legs, and alerts the rider when the banking angle is becoming critical. Rider and machine form a single functional unit to offer a more intense riding experience than ever before. Edgar Heinrich sums up: "The BMW Motorrad VISION NEXT 100 unites the best of both worlds – digital and analogue – for the ultimate emotional experience: The Great Escape."

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