PERFORMANCE ELECTRIFIED

The 2014 BMW i8 revolutionizes the shape of things to come

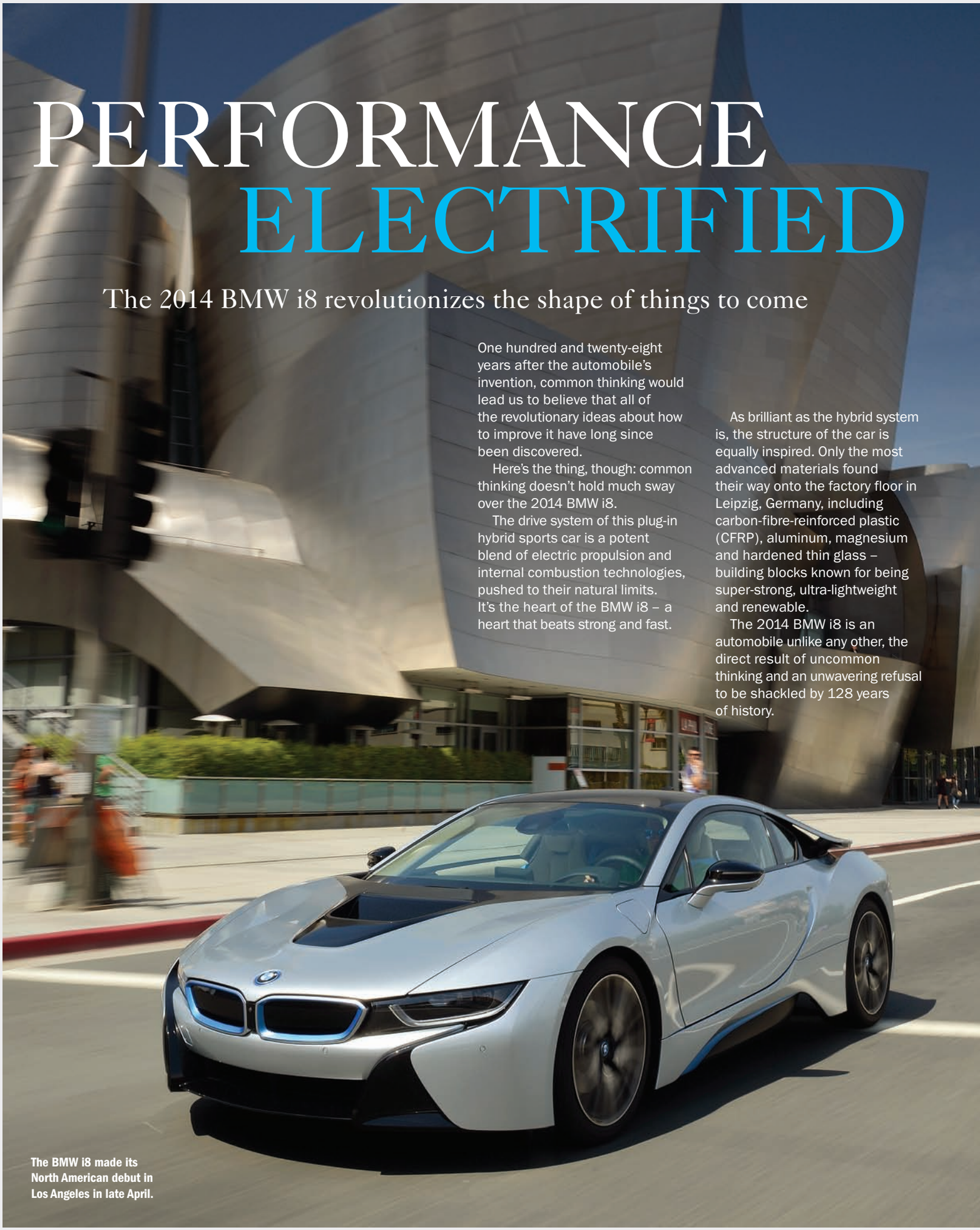
One hundred and twenty-eight years after the automobile's invention, common thinking would lead us to believe that all of the revolutionary ideas about how to improve it have long since been discovered.

Here's the thing, though: common thinking doesn't hold much sway over the 2014 BMW i8.

The drive system of this plug-in hybrid sports car is a potent blend of electric propulsion and internal combustion technologies, pushed to their natural limits. It's the heart of the BMW i8 – a heart that beats strong and fast.

As brilliant as the hybrid system is, the structure of the car is equally inspired. Only the most advanced materials found their way onto the factory floor in Leipzig, Germany, including carbon-fibre-reinforced plastic (CFRP), aluminum, magnesium and hardened thin glass – building blocks known for being super-strong, ultra-lightweight and renewable.

The 2014 BMW i8 is an automobile unlike any other, the direct result of uncommon thinking and an unwavering refusal to be shackled by 128 years of history.

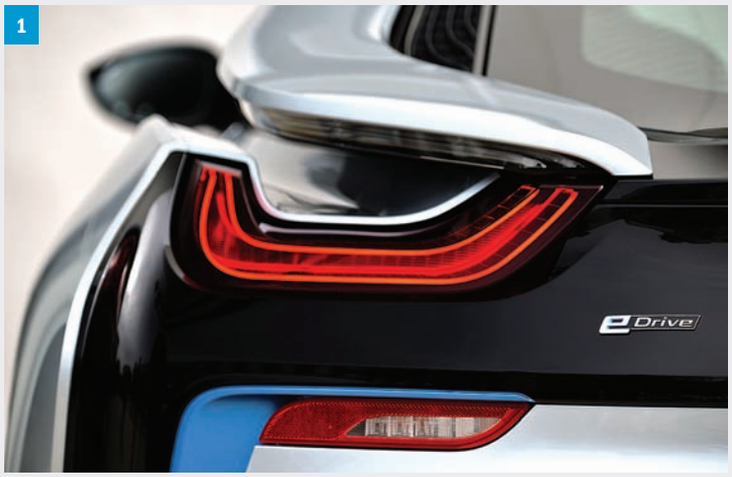


The BMW i8 made its North American debut in Los Angeles in late April.

Sculpted shape, flowing lines

The BMW i8 was designed to showcase the future of sustainable mobility, while maintaining the dynamism and excitement that all BMWs are known for. Starting with a concept introduced in 2009 called Vision Efficient Dynamics, the design team updated and improved the original iteration.

The engineering brief called for a lightweight hybrid sports car with radical performance and sustainability characteristics, and the designers were tasked with fulfilling that mandate. The result is a design focused on purpose and athleticism, with aerodynamics and muscular proportions underpinning every curve. Each visually arresting angle showcases an innovative approach that goes beyond convention. Working with such materials as CFRP, aluminum and thermoplastic, BMW's designers have created a form that ties these elements together in a highly dynamic package. The i8 looks fast just standing still, with fluid lines that appear to have been shaped in a wind tunnel.



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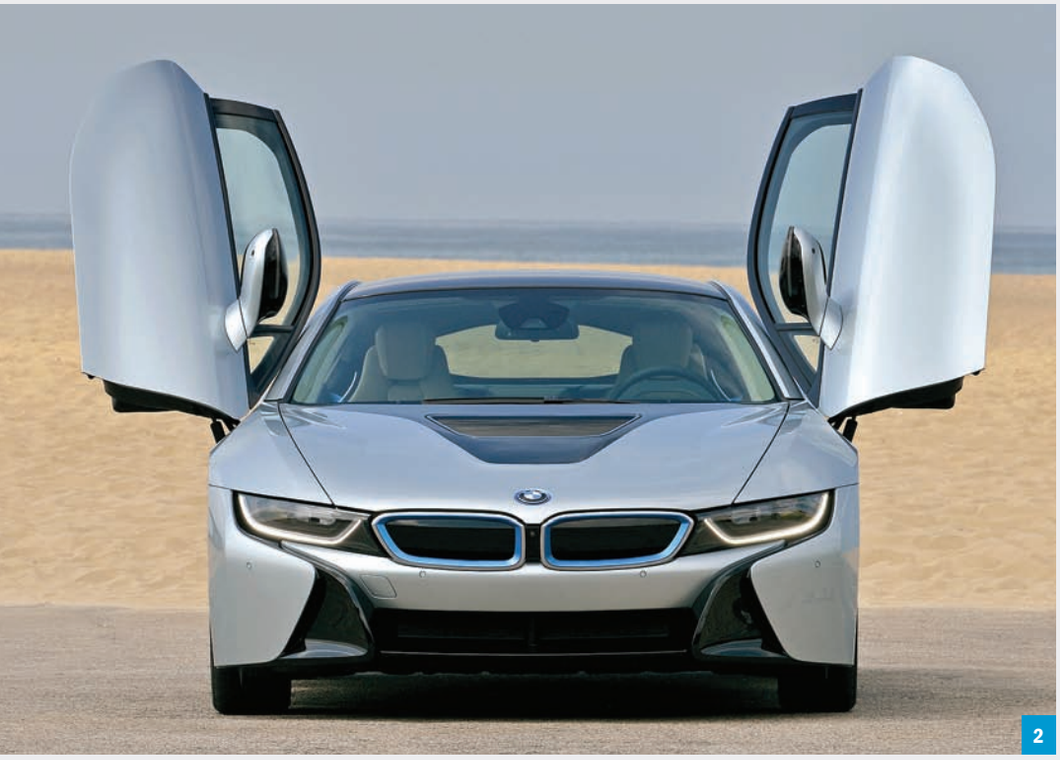
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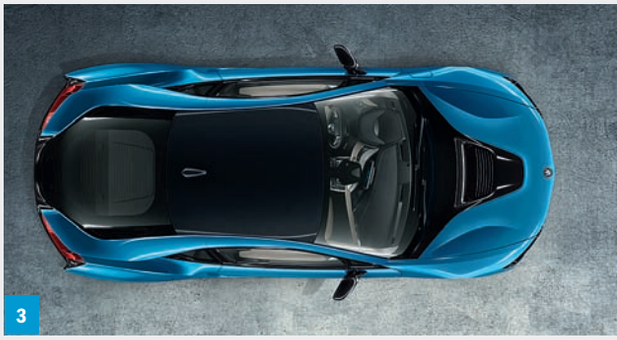
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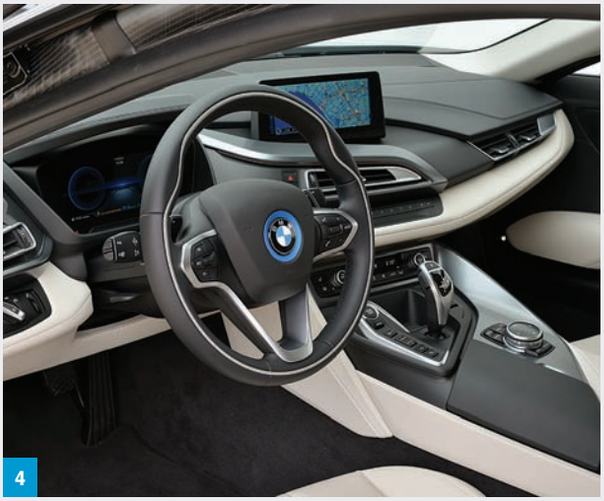
1 Stream flow and layering principles are used to create a sculpted wedge shape that is both futuristic and aerodynamic.

2 Scissor doors open up and outward in a wing-like motion.

3 Signature design features include a "black belt" that runs from front to rear over the hood, the roofline and the rear section.

4 The i8's interior is a new-age environment where the occupants are surrounded by an array of high-pixel displays and LEDs.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Two aluminum-framed drive modules, containing powerful, efficient electric and gas motors, are mounted beneath the low-slung panels of the front and rear sections. The brand pedigree is most evident from the short overhangs and the long wheelbase, indicating that the i8 is a true performer.

Signature "i" features include a "black belt" – a black section that runs from front to rear over the hood, the roofline and the rear – as well as interlocking and overlapping side panels. The side and rear views show the stream flow and layering principles used to create a sculpted wedge shape that is both futuristic and aerodynamic. The rear fenders and overhangs are attached in an artful way that makes them appear to float in mid-air, emphasizing the wide stance and fluid lines of the rear. Adding to the drama are scissor doors that open up and outward in a wing-like motion, revealing the CFRP that frames the passenger cell.

The interior incorporates a redefined premium philosophy that includes sustainably sourced and treated materials, with uncompromising fit and finish. The cabin of an "i" vehicle is a new-age environment where the occupants are surrounded by an array of high-pixel displays and LEDs. Each component and surface flows over long, elegant lines, reminding occupants that they are experiencing a high-end sports car designed with a sustainable future in mind.

Lightweight, agile and engaging

Until the arrival of the 2014 BMW i8, hybrid cars were burdened with what critics would consider a key component and a fatal flaw: the battery pack.

The critics were right, and they still are – to a degree. Electrified vehicles run on batteries linked together to provide an energy source for the motor. More batteries equal more weight that needs to be accelerated down the road.

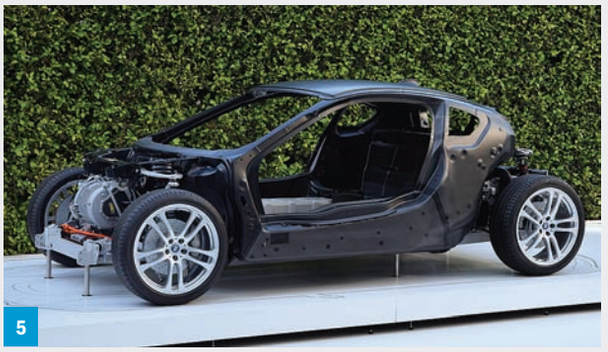
But there are other factors that the critics haven't considered. First, battery technology is charging forward at a furious pace, and the lithium-ion battery pack in the BMW i8 is a powerhouse. Second, the backbone of the car is the result of a revolutionary weight-loss regime.

The platform consists of a CFRP passenger cell fastened to an aluminum chassis. This design enables the BMW i8 to weigh in at just 1,485 kilograms, significantly less than the average mid-size sedan.

With a lightweight, super-strong chassis as their starting point, the engineers at BMW tuned the electric power steering and the adaptive suspension system to a fine point. In the process, they hit upon a fantastic compromise: a sports car that doesn't sacrifice ride comfort for cornering capability.

To improve matters, the battery pack is mounted beneath the floor, in the middle of the vehicle. This design ensures a low centre of gravity and 50:50 weight distribution, front to back, both of which contribute to razor-sharp handling.

In the final analysis, the liberal use of lightweight materials, especially carbon fibre, has served to make the BMW i8 a rare vehicle: a hybrid sports car with true sports car capabilities.



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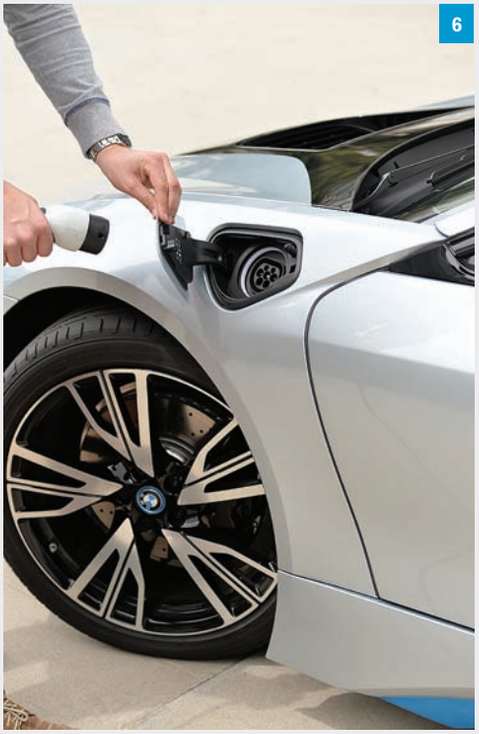

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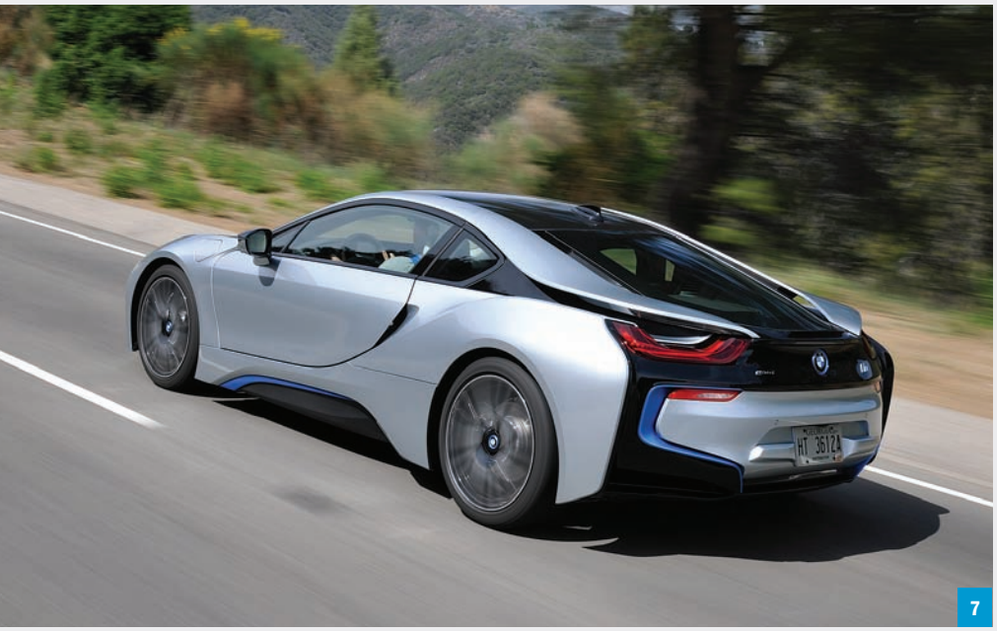
5 The passenger cell is crafted out of carbon-fibre-reinforced plastic, significantly reducing the vehicle's overall weight.

6 This sports car is no gas guzzler: it achieves 2.8 L/100 km in combined city and highway driving – and it can be recharged using a standard electrical outlet.

7 In sport mode, the hybrid system taps in to the full power available from both the electric motor and the gasoline engine.

"We didn't just want to make an electric car, or a hybrid car. We wanted to offer new mobility that is at least as emotional, and as fun to drive, as the products we're known for."

Adrian van Hooydonk, director of BMW Group design



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Pure performance, purity of purpose

The plug-in hybrid powertrain of the 2014 BMW i8 comprises two different energy sources. A 96-kW electric motor (131 h.p.) sends power to the front wheels through a two-stage transmission. The rear wheels are motivated by a turbo-charged, 1.5-litre, three-cylinder gasoline engine (231 h.p.) linked to a six-speed automatic transmission. This gives this unique sports car another unique attribute: true all-wheel drive.

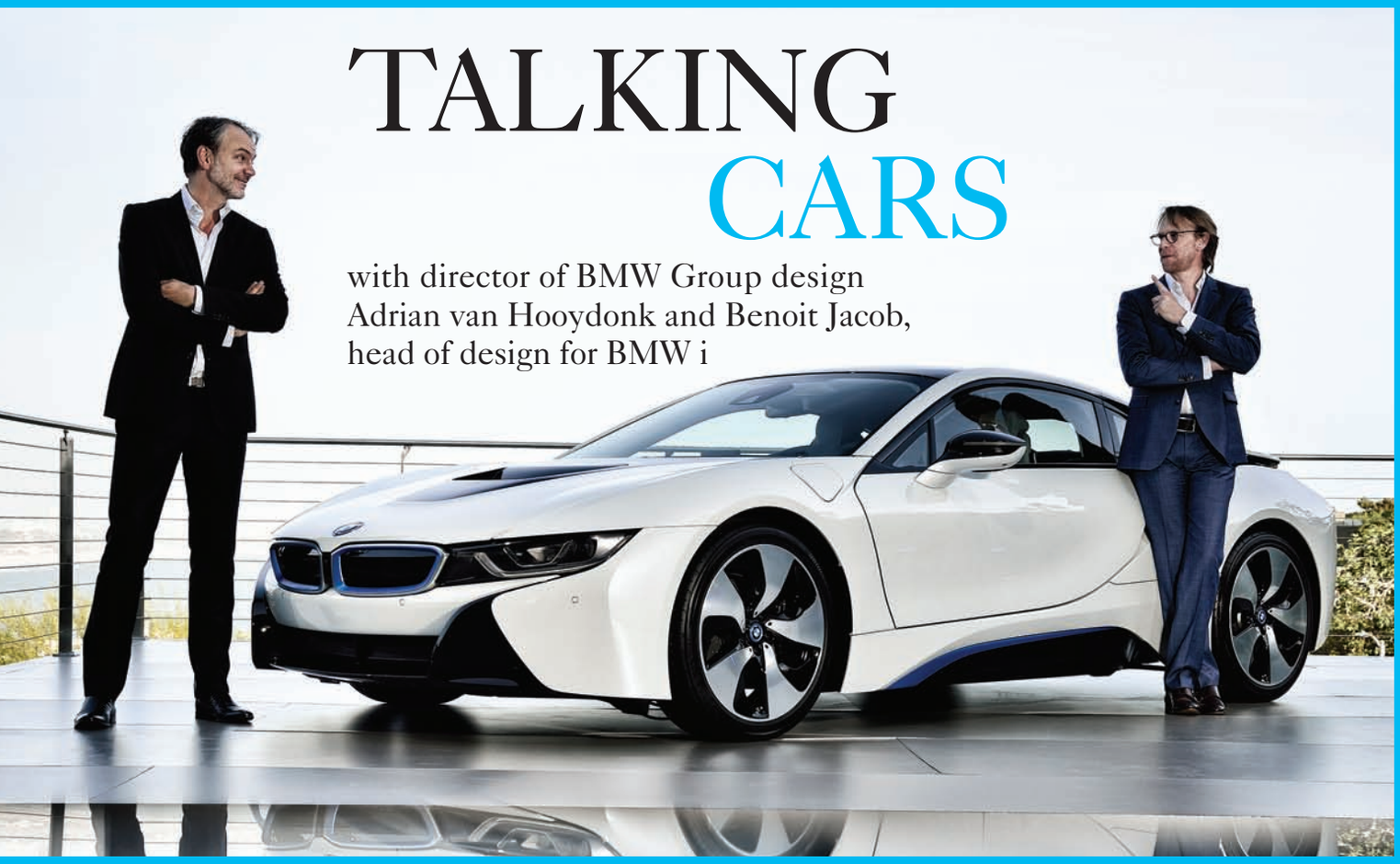
The hybrid system and its five distinct drive modes are accessed via the Driving Experience Control switch, the eDrive button and the shift lever, all located in the centre console, all conveniently oriented toward the driver. Of the five modes, eDrive and eDrive EcoPro are dedicated to all-electric motoring. With eDrive engaged, the BMW i8 is capable of travelling for up to 37 kilometres and attaining speeds of up to 120 km/h, all with zero tailpipe emissions.

At the other end of the scale is the sport mode, triggered by the shift lever, which signals the hybrid system to tap into the full power available from both energy sources. In this case, the BMW i8 can sprint from zero to 100 km/h in a scant 4.4 seconds and achieve an electronically limited top speed of 250 km/h.

In a stunning display of duality, this hybrid sports car also boasts sparkling fuel consumption – just 2.8 L/100 km in combined city/highway driving – and, of course, it can be recharged using a standard electrical outlet.

TALKING CARS

with director of BMW Group design Adrian van Hooydonk and Benoit Jacob, head of design for BMW i



What separates the design of BMW i8 from the parent brand?

Benoit Jacob: It was very important to show the new brand, BMW i. It needed to signal aesthetically that it differs slightly, but it must also be recognizable as a BMW, so we struck a balance. In the i8, you will recognize BMW in the front, the kidney grilles, all those sorts of elements. On the other hand, you will find elements that are unique to the "i" family. With a new brand like BMW i, you have a bit more freedom, a little less dogma, which gives you the opportunity to be more creative and reactive to the challenges that are presented.

Adrian van Hooydonk: We wanted it to look very different from the cars we've made so far, because we felt that the technology was so new. It can drive electric and has low to zero emissions, it's built out of carbon fibre, and all of that is quite revolutionary. With that, we felt we should make a very modern, futuristic shape. We didn't just want to make an electric car, or a hybrid car. We wanted to offer new mobility that is at least as emotional, as fun to drive, as the products we're known for.

The final product looks futuristic and still somewhat conceptual. How did you stay true to the original concept introduced in 2009?

Benoit Jacob: The i8 is probably the first case in the automotive industry where the promise matched the car delivered, and this was done very quickly. I had enough experience to say, "We have an asset. Why don't we simply develop it?" We strove to make it better, more believable. This was a design we already knew people liked. There were a few things to be addressed – the proportions had to be reworked according to a new package – but it's not so different.

The i8 is a halo car for BMW. Why is this car so important?

Benoit Jacob: It's a performance car, from a design standpoint, but the car itself is also a performance. That's the idea of BMW i, to make the impossible possible. This is actually reflected in the design. It's quite an engineering marvel, so the design had to express that. It would have been really disappointing to have this super-high-tech product, a kind of future car, with an extremely conventional design.

Adrian van Hooydonk: Well, I have to say that this whole project is a dream come true. Because we had complete freedom, the car was designed to show that new mobility could be striking and emotional. Thinking with the right side of the brain, we were conscious of the need to deal with sustainability, to bring the emissions down, and we did do some head-scratching. But the whole company was behind it, because everyone was so excited that this was the way forward.

Tell us about the importance of designing an attractive sustainable car.

Benoit Jacob: I said to my team, "Let's not just design an electric car. Let's design an exciting car. And if on top of that it's sustainable, that's even better." It was important not to just take the "Let's save the world" approach. Electric cars are often dull, looking like a guilt-managed product where the beauty was compromised. Our take is different: we want to break through and bring sustainability across in a serious manner, but it also has to look special.

Adrian van Hooydonk: We know from our market research that the number one reason for buying a BMW is design. If you asked car aficionados 10 years ago if they wanted a hybrid or electric car, they probably would have said, "No, I don't ever want one." Now, even in countries like the United Arab Emirates, where they have no notion that oil may one day disappear, when they saw this car they wanted it. This tells me that through design, you can make something so desirable that people want it, no matter the technology behind it. ■

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