



Inner worlds – the new architecture of mobility

- **A technological shift is revolutionizing vehicle design**
- **The interior is becoming the heart chamber of automotive design**
- **3-D visualizations are increasing quality in the design process**

Ingolstadt, July 15, 2021 – “As a designer, there has never been a time as exciting as today. Right now is the best time to rethink and reconfigure automobile design – to put it briefly: to lead car design into the future,” says Audi head designer Marc Lichte. In fact, behind his enthusiasm, behind the pure emotion lies one of the greatest revolutions in this history of the automobile.

New technologies are changing people and the ways that they move: the transition to e-mobility, the automated driving of the near future, all-encompassing digitization, and with it the networking of car and world. All of that is not only having a major impact on technical construction, but it is also revolutionizing design for future Audi models and, consequently, the design process.

Design is part of the essence of Audi’s brand. That means that it is an essential expression and visible symbol of “Vorsprung durch Technik”. Design makes an emotional identification with the brand possible and, as a consequence, it is always a core selling point.

Permanent change: What does the design of an Audi have to do?

In the past, it was often the bulky combustion engine – usually positioned in the front of the vehicle – that determined the basic proportions of the vehicle body. Consequently, it has also defined customers’ aesthetic ideals – for decades. The cabin was as flat as possible, shaped in a wind tunnel. The interior was functional and high quality – a control center, often compact and subdivided by the center tunnel and control elements. A symbiosis of conflicting parameters: seat comfort suitable for long-distance trips versus lateral acceleration, space for passengers versus a sufficient luggage compartment, a bright sense of homeliness versus multifunctionality in every corner.

The car of tomorrow: the much more compact electric engines now sit on the axles, the battery is in the underbody area, and the dimensions of the vehicle cabin in the middle are growing. Outside, but above all inside: in the future, cars will drive fully or partly automatically and steering wheels and pedals will at least be intermittently expendable and may disappear.



User convenience and connectivity inspired by smartphones are increasingly important. Above all, they have long been a factor in purchasing decisions for younger customers. For that reason, car design is more and more becoming experience design with the objective of creating experiences for the user. Audi Design head Marc Lichte asks the critical question: “What demands are users making of us? Do they want to be able to work in the car, read, or sleep? What purpose are we designing the car for? Long distances? Cities? Leisure? What does the appropriate interior need to look like for that?”

In the future, the interior of an Audi should therefore no longer be just a functional control station for the driver, but should instead reflect individual needs and integrate countless functions as smoothly as possible. Various operating philosophies – language and gesture control as well as touch-sensitive surfaces – will replace traditional switch panels and rotary wheels. Consequently, the interior of the future will set new standards for integration of technology, spaciousness, and feel-good ambiance. In the future, Audi literally wants to offer more free space where passengers can open up during the drive – even, and in particular, when they are no longer needed as drivers in their cars.

This means that in the future, the interior will set the pace for vehicle design overall. “With respect to both the design and the essence of the brand,” says interior design head Norbert Weber, “a successful synthesis of architecture, design vocabulary, and materials in the interior is a distinguishing feature of every Audi – that will only be reinforced in the future.”

From the idea to the final design: How does the creative process work at Audi?

At Audi, the foundation for every design project is an upstream concept phase. The focus here is on worldwide users. That is the basis for design development and an innovation portfolio that is consistently oriented toward people. It is a matter of recognizing individual needs and extracting requirements from them in order to make a seamless overall mobility experience possible. That is how new intelligent and holistic products and services come about. With that foreknowledge, the project’s first, very target-oriented design sketches are produced as visualizations.

The starting point is usually a simple outline drawn digitally on a graphic tablet or occasionally even traditionally with pencil and paper. As a result, the designers are always and everywhere able to let their creativity run free and develop a feeling for individual ideas. “The best method is to then share ideas with each other.

As things move along, only the ones who shed their tunnel vision, sketch ideas, and share them will get better and more creative,” says Immo Redeker, Audi Design’s head of interior



architecture. Digital tools have long been part of the standard repertoire in the collaboration between the various design locations. Above all, the significant improvement in data glasses, which had only a niche existence for a long time and were not fully developed, has been crucial for the technological breakthrough.

The result: if the clay model above all was the fixed point for teams in design and aerodynamics, then digital technologies like virtual reality are fundamentally changing the way they collaborate. The teams meet across disciplines in virtual space – regardless of whether they are working in Technical Development in Ingolstadt or elsewhere in the world. Each and every person is equipped with VR glasses and a controller. Various concepts and versions of the exterior and interior can be changed at will – and in real time. During the analog era, this process often took several weeks. In turn, the time saved gives the participants more freedom to perfect the given model further. Using 3-D visualizations therefore produces highly polished designs and consequently improves the grounds for and reliability of decisions. Interior designers in particular can realistically experience and safely assess proportions and spatial concepts with this technology right in the concept phase. That is why design requires the highest quality depictions. Do the reflections in the lacquer and the shade edges in VR match reality? Special computer clusters provide high-resolution image content. They can even calculate dynamic driving scenes and simulations from model designs.

Twenty-four hours of Audi Design: How do the Design Studios around the world work together?

Cooperation in Audi Design is intercontinental. In that process, the customer-centered approach to developing a product that is fascinating, durable, and fun always comes first – and is constantly the Audi Design crew’s greatest challenge.

Consequently, 450 designers from 25 nations are preoccupied with developing creative ideas. The company’s studios in Ingolstadt, Beijing, and Malibu form the germ cells for the models of tomorrow. That is where different fields work hand in hand to refine visions, designs, and prototypes. The Design Center in Ingolstadt supports fast and integrative work and design processes between the design, model making, and technology. Large-scale LED walls and modeling spaces with milling machines stand right next to each other and make it possible to directly compare 3-D models with reference models.

In the process, the locations are also competing. Before ideas go into a series, they first have to hold up to international competition within the company. Changing locations over several months ensures that colleagues at Audi are better networked with one another and learn from



each other. Moreover, on site they find out what specific needs customers have specifically in the big and important Chinese and American markets.

Digitalization meets craftsmanship: How does an idea become reality?

The completed digital data sets from the Beijing and Malibu locations are transferred directly to the Design Center in Ingolstadt, where they are milled with milling machines to clay models at the desired scale. Despite the digital design development, a physical exhibit nonetheless remains an indispensable part of the decision-making process at Audi. The designers check the proportions from various distances in order to get a better sense of their coherence. “Nothing can replace the feeling of standing in front of a model in reality,” says lead engineer Weber. “That’s when the perspective becomes lifelike to the human eye.”

“Outside Bold, Inside Magic” – Exterior and interior at eye level

For the leading creatives at Audi, design is always a process that takes place at eye level between the two disciplines, even if it will develop from the inside out in the future: “On both sides, we want to create the best-of for Audi,” says exterior design head Philipp Römers. “Autonomous driving at level four and the resulting technical possibilities also cause future possibilities for creating a prestigious silhouette from that – with perfect proportions and special aesthetics.”

Product and Technology Communications

Christoph Lungwitz
Spokesperson Design
Phone: +49 151 54331109
Email: christoph.lungwitz@audi.de
www.audi-mediacyenter.com

Product and Technology Communications

Josef Schloßmacher
Spokesperson Showcars
Phone: +49 841 89 33869
Email: josef.schlossmacher@audi.de
www.audi-mediacyenter.com





The Audi Group, with its brands Audi, Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles in the premium segment. It is present in more than 100 markets worldwide and produces at 19 locations in 12 countries. 100 percent subsidiaries of AUDI AG include Audi Sport GmbH (Neckarsulm, Germany), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese, Italy), and Ducati Motor Holding S.p.A. (Bologna/Italy).

In 2020, the Audi Group delivered to customers about 1.693 million automobiles of the Audi brand, 7,430 sports cars of the Lamborghini brand and 48,042 motorcycles of the Ducati brand. In the 2020 fiscal year, AUDI AG achieved total revenue of €50.0 billion and an operating profit before special items of €2.7 billion. At present, 87,000 people work for the company all over the world, 60,000 of them in Germany. With new models, innovative mobility offerings and other attractive services, Audi is becoming a provider of sustainable, individual premium mobility.
