



Easily create the Audi of your dreams

- **Technology from the video games industry sets new standards on the Audi Configurator**
- **Thanks to game engine, customers can virtually take a seat in their configured vehicle in real time**
- **Collaboration between Audi, markets, and development partners such as Audi Business Innovation taking place in an agile setting**

Ingolstadt, August 26, 2021 – Which model will it be? With an internal combustion engine or electric drive system? And what about the exterior – the paint, the wheels? Would you like the S line? Any special preferences for the interior? What about entertainment options and driver assistance systems? Consultations of this kind not only take place at Audi dealers, but also millions of times on Audi websites. According to Michael Kranz, Head of Digital Business & Experience, “our digital platforms offer customers a premium personalized and visual experience.” The online car configurator on audi.de alone received more than two million hits in 2020, and this figure continues to rise year after year. A look at the back end of Audi’s configurator landscape.

More than 20 years ago, Audi’s first car configurator was mailed to potential customers on a CD. “Today, we always use the latest web technologies, thereby leveraging multimedia to help our retail network generate excitement among potential buyers for an individually configured vehicle during the information-gathering stage on the web or in the showroom,” explained Georg Georgakas, Product Manager for International Audi Websites. “Most of our customers use the car configurator on the web before purchasing their Audi model.” The configurator is currently also used by around 1,000 dealers at local Audi centers in 27 markets. Whether in the digital or analog world, customer expectations are equally high. 3D visualizations, high-quality vehicle images, and detailed information have long been part of premium manufacturers’ standard repertoire. “Potential customers need to be able to access everything as quickly and conveniently as possible without having to switch between different media formats,” said Georgakas, who is driving the development of the configurator in the markets.

Transition to a seamless customer journey

The Audi car configurator runs on the Amazon Web Services cloud platform. The technology uses a bandwidth test to ensure that users with suitable network speeds access a 3D stream on the website, otherwise the system switches to the 2D version. A complex feasibility check is performed in the background in real time to determine whether the combinations of options the user has selected are actually available and can be delivered, based on production data from Audi factories that is updated on a daily basis. The possible configurations and the number of versions are almost limitless. On average, individual checks take only tenths of a second. “If customers have to wait a long time for feedback, they grow impatient and lose interest,” Georgakas noted. That’s why Audi continuously optimizes the user experience using the latest approaches and web technologies.



In addition, Audi constantly incorporates market data into the system, such as which combinations are currently popular or which optional extras are in particularly high demand. This means that online users get results much faster or will soon receive preconfigured suggestions via the myAudi app.

At any point during the configuration process, the user has the option of saving their selected configuration online using a code, downloading it in the form of a brochure, switching directly to a personal online consultation with Audi, or schedule a test drive on site. Since the beginning of the year, a matching feature has supplemented the information-gathering stage – based on the user’s selected configuration, an algorithm identifies new and used cars from the Audi Germany trade network that are immediately available or can be delivered at short notice and that match the configuration as closely as possible. “We’re continuously working to create a seamless customer journey within our digital ecosystem,” explained Kranz. “E-commerce plays a particularly central role in this context, and we intend to successively expand this further in collaboration with our dealers.”

An unmatched visual experience

Reviews from independent market research institutes attest that the Audi configurator is unrivaled when it comes to its visual experience. Everything users configure is presented to them in real time in photorealistic imagery – and on any screen. The vehicle is displayed in either HD or 4K, allowing users to navigate to every detail, right down to the stitching of the leather seats. You can move around the car, select colors and options by default, and open all the doors, the panorama roof, or the trunk with a click. The virtual model can also be displayed in different lighting situations and locations – such as in front of the Brandenburg Gate in Berlin or the Allianz Arena in Munich. And users can even turn the matrix LED headlights on and off. All this is possible thanks to the combination of different innovative technologies. At the heart of the system is Audi’s own “Automotive Visualization Platform” – or AVP for short. The tool generates images and animations for the configuration of every model.

Game engine brings configurator to life

In the background, AVP utilizes the source code of the Unreal Engine software developed by a well-known US software company. This game engine was originally developed for console and computer games. What has been setting new standards in the gaming scene for decades has matured into an everyday tool at Audi. At its core is a graphics unit that creates the actual image – it first takes the 3D model of the object and covers it with a surface. These textures can look like vegan leather for the seats or veneer, for example. “The Unreal engine generates images that even take reflections, lighting effects, or light reflections on different materials on the vehicle into account without much programming effort,” explained Andreas Sicheneder, CEO of Audi Business Innovation, which ensures the technological realization of the digital customer journey. “Countless designers around the world use the game engine to create digital worlds – even for Hollywood movies. Programming our own tool to generate such effects would have been far too costly.” The game engine uses original design data as its source material and completely reproduces the vehicle virtually.



Huge quantities of data based on the valid parts lists from the production data systems are automatically processed by the software for this purpose. Due to its level of detail, however, some of this data has to be adjusted manually. A Computer Aided Design (CAD) file precisely describes each part with its specific dimensions. “We’ve simplified 70 percent of the data and cut the manual steps down to 10 percent. A large amount of the detailed design data is simply not needed to display different versions of a part in the configurator. After all, we don’t have to show the inside of a steering wheel or what’s hidden behind the trim in the interior, for example,” explained Sicheneder.

Digital Center for Excellence: Audi Business Innovation

Audi Business Innovation creates virtual worlds for the brand with the four rings, among other innovative solutions. The subsidiary with three offices in Munich was founded in 2013. Here, more than 230 employees from 18 different countries develop and implement digital products and services in the field of mobility for Audi and other group brands. Numerous teams of experts in various fields work on the Automotive Visualization Platform. The quality of the images generated by the game engine is now so high that even the professionals have to look closely to spot differences between them and actual photographs. Another advantage is that the use of gaming technology saves considerable time and significantly cuts costs. “We have the ability to generate all of the 2D and 3D views of a vehicle in a matter of days,” Sicheneder said. The game engine creates 90 percent of the images and animations for the configurator. In the past, this required elaborate photo shoots and film productions that took place around the globe. If something about a product changes today, the only thing the team needs to do is import the latest CAD data.

Agile software development

A total of around 100 experts worldwide are involved in the enhancement of the configurator for Audi. “We’ve moved to extensively automate software development and decentralize the online configurator step by step,” Michael Kanz emphasizes. They also develop individual functionalities on their own and making them available to the network – without Ingolstadt having to pull all the strings. Customers benefit from quick updates and a continually optimized user experience. Agile collaboration and technology like the game engine therefore illustrate once again how Audi is changing with the times and consistently tailoring digitalization of all points of contact to the needs and expectations of various target groups in the offline and online world.



Corporate Communications

Sina Clemendt
Spokesperson Sales and Marketing
Phone: +49 15257718455
Email: sina.clemendt@audi.de
www.audi-mediacycenter.com/en

Product and Technology Communications

Stefan Grillneder
Spokesperson Product and Technology
Phone: +49-841-89-41449
Email: stefan_grillneder@audi.de



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.
