

The smart factory

Audi Neckarsulm pilot plant in the VW Group

1 RFID provides vehicle data throughout the plant

RFID data carriers allow for each vehicle to be identified individually throughout the entire production process, making relevant vehicle data available to all groups.

2 Pearl chain concept synchronizes production and logistics

An algorithm takes almost two trillion possibilities into consideration to calculate the ideal sequence of cars on the assembly line that also optimizes the workload.

3 Driverless floor conveyors

Driverless floor conveyors have been used at Audi since early 2017, offering automated transport for materials within the factory halls.

4 Driverless transport system

At Böllinger Höfe, certain scopes of the Audi R8 and Audi e-tron GT are assembled on a driverless transport system. A digital map, RFID chips in the floor, laser scanners and comparisons with actual wheel movements allow them to navigate through the factory halls.

5 3D building scans

3D scans help to create a virtual image of the production facility, allowing production to be planned regardless of location. All machines, facilities and racks are recorded in the process.

6 Smart maintenance

Predictive maintenance calculates possible wear and tear on production equipment in the body shop, based on a big data analysis of more than one million data sets.

7 Virtual assembly planning

Thanks to 3D building scans, machine learning processes and virtual reality applications, among other things, Audi was able to test all assembly processes for the e-tron GT without any physical prototypes.

8 Virtual container planning

It's not just processes and workflows that are planned virtually at Audi. So are objects like containers for transporting or storing sensitive components.

9 3D printing

At Böllinger Höfe, 3D printing specialists quickly and accurately produce individual assembly aids. Proprietary software reduces design time in 3D printing by 80 percent.

10 Paint shop cockpit

The paint shop cockpit processes data from the paint process to make sure that possible deviations can be identified at an early stage.

11 AudiStream – virtual plant tour

Whether you're in Neckarsulm, Mexico or Shanghai – with AudiStream's digital plant tours, everyone can experience our Neckarsulm plant up close. Experienced guides host the virtual tour and answer any questions.

12 Vehicle localization drone

An autonomous drone flies over the areas where vehicles are parked before dispatch. It uses RFID and GPS to detect and store the exact position of all the vehicles so that they can be loaded and delivered to customers.