Platform for China: a new control unit for the infotainment system

12/08/2024 Digital ecosystems have grown at a rapid rate in China over the last few years. They are now an integral feature of everyday life. This has a corresponding impact on the expectations placed on vehicle infotainment systems. As part of model updates, Porsche and Porsche Engineering, in conjunction with a Chinese supplier, have therefore developed a new control unit for the infotainment system in the Boxster, Cayman, and Macan—in record time and 'in China for China'.

The infotainment system plays a particularly important role for Chinese customers when it comes to purchasing a vehicle. They expect features such as convenient, dialog-oriented voice control and the availability of popular country-specific apps, for example for mobile access to music, podcasts, videos, messaging services, and the provision of real-time information using cloud-networked map and navigation functions. Many local traffic guidance systems are cloud-integrated, meaning that the waiting time at a red light, for example, is available as real-time information and, if the driver has the appropriate apps, can be displayed in the form of a countdown.

"For that to work, a vehicle has to be equipped with the right hardware and software, as well as an

appealing user interface. That's why we regularly perform model updates on our vehicles: So that they can keep pace with rapidly evolving customer expectations," reports Michael Ackermann, Senior Expert Digital Product Line Macan at Porsche AG. "In 2022, we decided to develop a new Android-based infotainment platform for the 718 and the Macan that would be suitable for China's current Internet services and which would offer customers what they expect from us."

Demanding Schedule

This meant that the new infotainment system needed to offer access to popular apps such as Ximalaya for news and podcasts, WeChat for messaging, iQIYI for video streams, and Kuwo Music, a streaming service comparable to Spotify. Improvements to the navigation system were also planned; it is expected to make use of maps and traffic guidance information from the Chinese provider Amap in the future. Voice control was also set to be raised to the next level, allowing colloquial commands such as "I wanna go to the station and get gas on the way" to be processed with ease.

In addition to the technology, there was another challenge: The demanding schedule. The project needed to be completed as soon as possible due to the rapid pace of technical development in the world of infotainment. "That's how we came up with the idea of looking for a supplier in China who could take care of development in China for China," Ackermann explains. That was where Porsche Engineering got involved: The company has a large development site in Shanghai, many local engineers, and numerous on-site testing options. "In spring 2022, we put together an international team of colleagues from Germany and China," says Thomas Pretsch, Director Infotainment at Porsche Engineering. "Our first task was to determine current customer expectations and to evaluate different Chinese suppliers. We also compiled all the specifications for the hardware, software, and user interface."

The job faced by the future supplier was just as clear as it was demanding: A new, state-of-the-art infotainment system was needed—but without changes having to be made to the two vehicle models to accommodate the new solution. "Factors such as thesize, the installation points, and the ventilation had to remain the same," Pretsch explains. After an extensive market analysis and a proof of concept submission from two suppliers, Porsche Engineering recommended one of the two companies as the manufacturer of the new infotainment system. Among other things, the company produces head units, complete screens, and solutions for rear seat entertainment. "This supplier had a suitable platform in its range that could form the basis for a new development," says Stefanie Ebert, who is responsible for managing the project at Porsche Engineering. "The company had also previously worked for Volkswagen, which meant that it was already familiar with the Group's processes and was already connected to several systems."

Porsche accepted the recommendation and, once the supplier had been selected, the project needed to start as soon as possible. To ensure efficient and rapid collaboration, Porsche Engineering set up its own development team in Shanghai, which included several function managers—including those for the navigation system and the Digital Assist voice control system. The developers' tasks included managing

the supplier and deciding on the functional definitions. They also oversaw and coordinated all modifications to the user interface, without neglecting the characteristic Porsche look that customers expect.

“In addition to the day-to-day cooperation with the supplier’s resident engineers who were seconded to Porsche Engineering China, there was at least one meeting a week in China about new software releases,” Ebert reports. The developers at Porsche Engineering in Shanghai also made sure they consistently coordinated with their colleagues in Germany. The Germany-based colleagues, in turn, formed the interface with Porsche AG and its managers, such as those in the infotainment and user interaction development departments. Axel Huber, project manager for infotainment and user interaction at Porsche: “It was important for us to have an expert partner familiar with the processes at Porsche and able to act independently and on their own initiative, without forgetting to consult with us on important decisions. Collaboration with Porsche Engineering and the system supplier was always very constructive.” Other interfaces with Porsche AG were the Macan and 982 model series, the quality assurance department, procurement, and sales.

Systematic testing of hardware and software was carried out by Porsche Engineering in Shanghai. “This meant that we benefited from the local expertise and market knowledge of our Chinese colleagues,” reports Ebert. “What’s more: In Germany, a lot of the tests wouldn’t have even been possible, because the map material installed, for example, was intentionally limited to China.”

Express Route to Success

In addition to the strict installation space requirements and the need to adapt the user interface to the Porsche design, the electrical compatibility of the new infotainment system with existing components such as the operating elements, instrument cluster, and reversing camera also proved to be a technical challenge. As most customers choose a Bose amplifier for their new Macan or 718, there also needed to be a way to connect it to the new hardware by means of a fiber-optic cable. “We usually use MOST as the interface for this, but the supplier did not yet have any experience with that kind of bus,” as Pretsch notes. “The Chinese engineers worked on this new aspect with great dedication, and were also able to successfully integrate this interface into the new hardware platform.” Once it had been ensured that the development satisfied the extensive requirements, Porsche Engineering issued its approval recommendation for the new infotainment system.

Porsche and Porsche Engineering, together with the supplier, were able to put this challenging project on an express route to success: Production of the new infotainment system started in China at the end of September 2023, and installation in Macan, Boxster, and Cayman vehicles began in Germany at the end of November. The first of these vehicles was delivered to customers at the beginning of 2024. As was the original plan, no changes needed to be made to the vehicles—even the wiring harness and its many connections to the infotainment hardware remained exactly the same. “Only the label tells our production colleagues that they are installing different hardware in the vehicles for China,” says Ackermann approvingly.

"Despite the very tight schedule of just 18 months, we completed the project on time and within budget," concludes Ackermann. "We would normally have needed three years, and it was only possible because we truncated our internal processes and reduced them to the bare necessities—without, of course, sacrificing quality or adherence to legal requirements." Ackermann added that the supplier showed great diligence and quickly solved any challenges that arose. He also praised the exemplary collaboration with Porsche Engineering: "We maintained an intensive dialog throughout the project, and our colleagues were always very well prepared. Overall, the collaboration was excellent—and meant that we could give our customers a lot of new features in a short time."

Info

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