New, Yet Familiar

Two experts talking digital solutions for the vehicle of the future.

Digitalization is the word on everyone’s lips these days—how do you define it?
Dr. Rolf Zöller: Digitalization is long since commonplace in exclusively digital and networked systems on board. What’s new is that the vehicle now communicates with the outside world as well. That’s the digitalization that one hears so much about today and the customer experiences. Our goal is to meet the customer in their digital lifestyle, bring them along and provide them with a useful benefit through our product.

Joachim Bischoff: At its core, today’s digitalization is characterized by massive increases in transmission rates and computing power, ever-rising storage capacity and ever-smaller chips. Those are the factors that enable what we understand as digitalization.

Is the impact of digitalization mainly a question of customer perceptions?
Dr. Zöller: Beyond the digitalization perceived by the customer, there are also fundamental impacts on our company and our processes. We have to be mindful of digitalization in our development processes and take more cues from the software industry, adjust our speed and think beyond where we are today—beyond the vehicle as we have known it to date. That is the overall digital experience perceived by the customer.

Bischoff: Precisely these two components, the internal and external, are essential for our future success: digital internal processes that enable an unparalleled customer user experience.

How well is the automotive industry prepared for these changes?
Dr. Zöller: The industry is actually better prepared for the situation than is generally assumed or in many cases communicated in the media. Vehicle development has been using various digital processes for quite some time. Take numerical simulation, for example. Beneath the sheet metal and in the development process, vehicles have been digital for a long time; it’s just not necessarily perceived by the customer as digitalization.

Bischoff: The complexity that one has found in the vehicle for the past ten years is astounding. Take the multimedia system for example. Here the networking of various functions has been in place for some time. Then there is the capability of integrating such complex systems in the vehicle environment, including vehicle functions like the drive unit control system. So the question can be posed: is it easier for a software company to build a car, or a carmaker to develop software?
Dr. Zöller: What’s really new is that we’re going beyond the vehicle, competing with other players and having to meet new requirements.
Earlier, the competition was other vehicle manufacturers. Today, the competitor might be an IT company, and the customers expect functions in the vehicle that a startup has only recently brought to the market.

To what extent does digitalization change the traditional business models of OEMs?

Dr. Zöller: They will change quite significantly. Enablers, as they are known, foster a new kind of product substance within and outside of the vehicle. One such enabler is over-the-air technology. It makes it possible to transmit software via the air interface, in order to update customer vehicles, for example. This not only allows us to ensure a continuously current status for the vehicle, but also opens up new options in terms of customization. For example, we can offer the customer additional and perhaps time-limited services and functions for a fee as on-demand functions.

What would that look like in practice?

Dr. Zöller: Today we’re used to selling a vehicle and thereby gaining an immediate profit from the sale. In the future, we will have to assume that the customer is not paying the investment sum in its entirety for the vehicle purchase itself, but over the entire ownership period. What that means is that we will have to continuously add new functions and features over the lifetime of the vehicle. We call it the “car for life” concept and expect it to bring about significant changes for our process worlds and the customer experience.

What does it mean for the customer?

Bischoff: The mobility experience is expanding. For the customer, this will open up completely new opportunities in terms of vehicle use, for instance through car-sharing concepts, and make additional services available on-demand.

Dr. Zöller: In the future, successful OEMs will be characterized by their ability to strike a balance between new business fields and their traditional activities, because the conventional requirements of vehicles will remain in place as well. And what especially applies to Porsche: a sports car has to be a sports car in the future as well.

What does the digital Porsche product world look like in 2025 from your perspective?

Dr. Zöller: Selling vehicles remains the top priority. However, we will increasingly enable and offer more services and service packages as additional products to customize the vehicles. Customers can expect an overall package specially designed for them and therefore unique. In short: we create a personal ecosystem for customers through which they can continuously stay in contact with their cars, the enhanced functions and the company in every conceivable way.

What themes is Porsche focusing on in particular?

Dr. Zöller: We concentrate particularly on functions and services that are characterized by our core competencies and brand-specific characteristics. This would include, for example, functions like the already available Porsche Track Precision app, which allows detailed display, recording and analysis of driving data on a smartphone for closed courses outside the public traffic environment.

Bischoff: Chassis functions could also be enhanced through new features: if customers want to drive more dynamically on certain stretches of road, they can specifically condition the vehicle setup for that using special data made available for that purpose.

Dr. Zöller: We also regard the topic of premium parking for our customers as very important. In dense traffic in urban areas, it’s always a great advantage to have assistance of any kind when it comes to parking. Our objective is always to focus on the Porsche ecosystem and its further development as a whole.
What role do separate organizational units at Porsche such as Porsche Digital GmbH, the Digital Lab and Porsche Engineering play in the context of the digital transformation?

Dr. Zöller: They enable us to have an efficient and targeted focus on the various different development phases while simultaneously broadening our horizons. Porsche Digital GmbH steers the early phase. They develop strategies and evaluate product ideas, derive business cases and customer experience on that basis and determine which partners would be most suitable for implementation. The Digital Lab takes care of bringing methods and technologies to maturity and thus advances the tools and processes for the digitalization projects. We see Porsche Engineering as an integral component for series development at the Weissach Development Center. That applies both to the software and its integration into the vehicle and ranges from the design of prototypes to tests and ultimately validation. Across all of these issues, we collaborate closely and do so with great effectiveness and efficiency.

With increasing digitalization, security aspects play an increasingly important role. How do you approach this challenge?

Bischoff: Security has always been an essential component of vehicle architecture at Porsche. Traditional vehicle safety with regard to theft and manipulation is now being expanded to include IT security. We regard this as an ongoing theme that is not concluded with the development and delivery of the vehicle but which requires continuous further enhancement. To this end, we've established departments, we engage IT and security experts and we work with established partners from the field.

Dr. Zöller: The over-the-air interface has a key role here: On the one hand it has to be secured against outside attacks, but also enables continuous enhancement of the vehicle’s security through updates—just like with a smartphone. So we ensure the security of the vehicle long after delivery to the customer.

With rising data diversity and volumes, how do you handle data evaluation and the issue of data protection?

Dr. Zöller: We take both issues very seriously. From the very beginning we've firmly anchored data protection in our Connected Car organization. In all products, protecting privacy is part of the fundamental design. It's important that customers know what happens with their data and when what data is used. Privacy modes ensure that no data is transmitted if the customer wishes it not to be. We go much further than all of our competitors in the respect.

What can the data obtained with consent be used for?

Dr. Zöller: We have a lot of ideas that concern our core product. How anonymized data from the vehicle fleet, for example, can help us make our vehicles even better. Or the fact that it enables us to generate a highly precise map for real-time traffic notifications. Such data will also play a major role in enabling autonomous driving by providing a lane-specific representation of reality that is up-to-date. This data, by the way, is anonymized in the vehicle before being transmitted.

Bischoff: How the data is used and who has access to it will also depend on the individual functions. If a vehicle is blocking a route and is behind a ridge, it would be morally reprehensible to make that data available only to cars of the same brand. Such safety-relevant data would certainly be exchanged between the different brands. Where it gets more restrictive is with data for Porsche-specific functions. They may not be of any interest to other manufacturers, but they are all the more important for high-performance sports cars. And a Porsche will always remain a Porsche.

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Dr Rolf Zöller (50)
After concluding his studies in electrical engineering and physics at the Mannheim University of Cooperative Education and the Technical University of Darmstadt with a doctorate specializing in numerical modeling, Dr. Zöller worked in software development for mechatronic systems for over ten years with Carl Schenck AG. From 1998 to 2001, he directed software development for high-end multimedia systems at Siemens VDO. In 2001, Dr. Zöller joined Porsche as the director of the software team in the electronics development department, recently responsible for the areas of infotainment, Connected Car, HMI and software development. In August 2017, he joined Volkswagen AG as Director Development Electrics-Electronics.

Joachim Bischoff (56)
After his studies in communications engineering at the Karlsruhe University of Applied Sciences, Joachim Bischoff began his career as a software developer with Nokia in Pforzheim. He subsequently worked for Harman Becker in various roles—first as the director of software development and concluding as Vice President of product development. In 2010, Bischoff joined Porsche Engineering as the director of the system development technical discipline and has headed the digitalization department since August 2016.
