Data-driven Business Models in the Automotive Industry:
It's not the Software, it's the Data that Matters

By Kai-Ingo Voigt

The news flash over: VW cannot get a grip on the software for the new Golf and the "ID.3", the delivery of the vehicles is therefore delayed. In order to make faster and better progress, a separate subsidiary, "Car.Software.Org", is founded on July 1 to develop the software for all Volkswagen brands. At Daimler, the software will in future be licensed from the US company Nvidia and adapted to the Mercedes models in a strategic partnership. BMW has been working with Intel since 2017. All these strategic activities are reactions to the American competitor Tesla, which has been successfully building and selling electric cars since 2008. From the very beginning, Tesla has relied on uniform software and a central computer in the car - a superior solution, as German car manufacturers are now realizing. Nevertheless, the road to a solution outlined by Tesla remains a stony one: In a classic car, 90% of the software comes from the suppliers, is embedded in the various modules as "embedded systems" and hardly integrates at all. The OEMs, who have always specialized in module and technology integration, are now working according to their integration logic again - but some experts consider this outdated: "Tesla builds the car around the computer, we try to get the computer into the car," says a leading VW top manager self-critically. The pride of German car manufacturers in having invented the car, or even "being" the car, is now proving to be an obstacle to innovation. Because for the first time, it is not about making the car better and better, but about working on new, intelligent and connected mobility solutions. Traditional car manufacturers still find it difficult to think primarily in terms of functions and software solutions and only then in terms of technical implementation. The problems have long been known in innovation theory: "incumbent inertia", "dominant design", "path dependencies" and other constructs describe the current problems. But - how do you solve them? The answers are even controversial among the major German car manufacturers: VW is trying to develop the software in-house à la Tesla (albeit with a time lag of several years), BMW and Daimler, on the other hand, are trying a mixture of cooperation and external technology procurement. It is also significant that the direct cooperation between BMW and Daimler for the purpose of joint software development was not successful and was effectively ended.

The business model is changing

And yet it is not actually about the software, but about its effect on the business model. The OEM approach to "making money" by developing, producing and selling cars has been stable over an astonishingly long period of time. Trends such as the increasing shift of development and production to suppliers and the strengthening of services and financial services as sources of income have only complemented the business model, but have not changed it in essence. It took some time to understand that Tesla is challenging the industry not (only) with an all-electric vehicle but with an innovative business model: "smart" mobility solutions based on a uniform operating system that can be updated and expanded via the Internet - and thus keeps the car up-to-date and optimized without the need to visit the car service. In

addition to (online) car sales, the decisive value drivers are now updates and upgrades of the software, but not car services on the hardware that have to be organized at great expense. As is the case with the purely electric vehicle, the car can be technically "simpler" than usual vehicles, because it is only a means to an end. The customer is at the center of the business model right from the start: mobility with a self-determined, scalable system configuration, but also connectivity, information, entertainment, social participation - no more technical refinements in the engine and no more compulsively "grafted" functionalities around it.

It's all about the data

The great rethinking has just started - and yet it is often seen as a software-technical problem. However, this obscures the fact that what is at stake here is ultimately something completely different: not software (alone), but the data that is generated and used, sent and received via the operating system. The automotive industry, like other industries, is on the way to data-driven business models, as the tech giants, but also some successful start-ups, are successfully demonstrating. In the automotive industry, this could look like this: People are, while being (soon autonomously) moved from A to B, online, receiving data, delivering data, communicating, and consuming. The car, too, constantly collects and transmits (environmental) data with the help of sensors, the "sensory organs" of the digital world. Algorithms, machine learning and AI are used for evaluation. This allows the mobility services themselves to be optimized, but also allows many other value-added services to be developed and sold. Now it becomes clear why the automotive industry has been talking so much about smartphones and "iPhone moments" lately. Although hardware is still indispensable in the IT industry, it is only one component of complex, digital and data-driven business models that have their main sources of income beyond the product. Taking this path in the automotive industry requires courage and creativity - and the necessary data basis. Here, too, Tesla is ahead of the traditional car manufacturers, but not uncatchable. Volkswagen, to give an encouraging example, has the time disadvantage in software development, but can compensate for this relatively quickly thanks to its enormous sales volume of around 10 million product units per year. All established carmakers potentially have access to huge amounts of data - they just have to make it accessible and use it, because it is the necessary "raw material" for new, innovative data-driven business models. Even in an industry as traditional as the automotive industry.

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