Digitization Platforms Contribute to the Digital Twin

Digital Assets in Aftersales

Targeted maintenance and repair play an extremely important role in increasingly complex vehicles. The paradigm “fix it right the first time” avoids extra costs and increases customer satisfaction. Alongside intuitive operation of the repair shop tester, the seamless integration and intensive use of digital technologies are of particular importance.

Julian Mayer

Highly complex vehicle architectures pose immense challenges for both repair shops and mobile repair teams. Without suitable technical and technological support, errors and their correlations are virtually impossible to assign clearly let alone eliminate. Consequently, either the time to repair increases enormously or expensive components are replaced unnecessarily, causing high additional costs. But to follow the paradigm of “fix it right the first time”, it is no longer sufficient to provide a repair shop tester that can reduce the time to repair through intuitive operation. In fact that has been the case for some time now. Customer satisfaction will not be increased sustainably until a system with a closed data loop is available in which manufacturers, repair shops, dealers and users have access to individual information at all times.

Consistency in Data and Processes

Most companies today already collect a wide range of data. This data is available in various forms, whether in a database, a local Excel sheet or a management system intended for this purpose. The great challenge here is to link the right data in a sensible way to create consistency across business units and users. Particularly the data from aftersales is extremely valuable and,

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among other things, helps to improve proprietary products and services. It is sensible to establish a digital data platform so this data can be used centrally (Figure 1). Such a system is the basis for a feedback mechanism to make continuous data flow possible. This process should not involve the replacement of any existing database systems, such as a CRM system. The ultimate goal is, with the help of what are referred to as connectors, to achieve seamless integration into an existing IT infrastructure. In this way, existing functionality can be used and sensibly supplemented. This also guarantees that all stakeholder groups get the right information at all times – taking the relevant access rights into consideration.

Creating Digital Images

Aftersales is about identifying errors and problems as quickly as possible, ideally before they even occur. By using IT technologies and creating a digital data platform, this process, and subsequently the targeted maintenance and repair, can be accelerated enormously. This is accomplished by creating digital images of an individual vehicle. The great advantage of such digital images: Through networking, they reflect the real actual state of the vehicle (Figure 2).

In particular, the following use cases play a role for the digital image:

- Reading out the current vehicle state
- A performed exchange of ECUs
- Executed software updates and also those which were omitted
- Vehicle histroy

In aftersales, these functions are part of the standard repertoire. A measurable added value for companies is only generated with the centralization and linking of this data using data platforms. This added value could be faster repair times, increased customer satisfaction or improved new products. This allows potential for improvement to be leveraged in virtually every area, from the development of new products to service.

Furthermore, it is not just a snapshot of the vehicle at the time of data acquisition. Rather, it is possible to trace and document the state of a vehicle over its entire life cycle. Analyzing this allows considerably more far-reaching conclusions for coming vehicle projects than is the case today without such information.

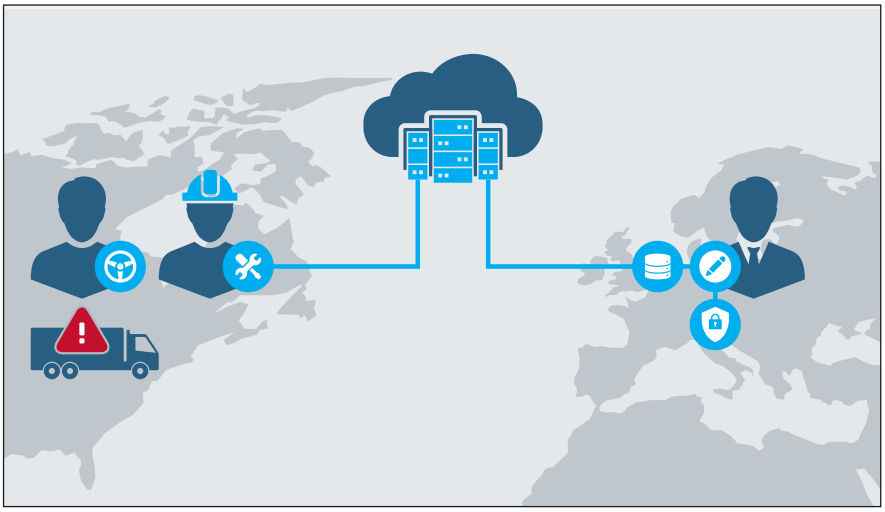

Fig.: Digitization ensures consistency in aftersales © Softing

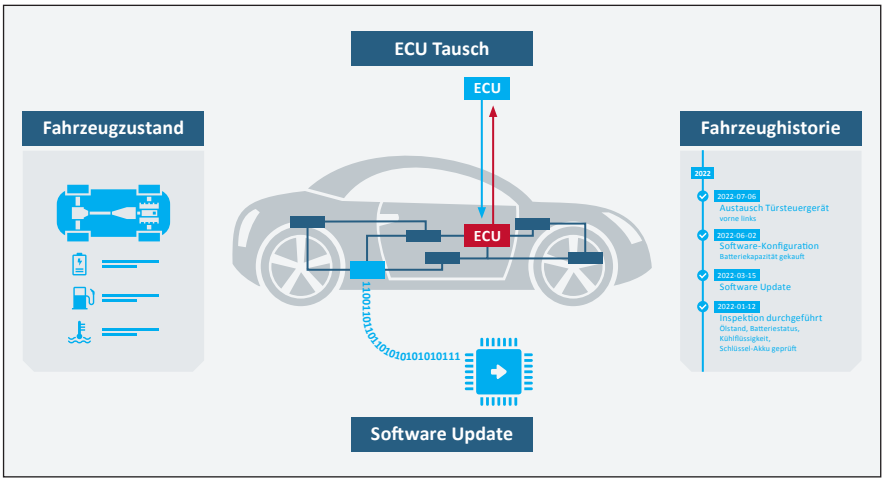

Fig.: Digital vehicle résumé documents the vehicle state over the entire life cycle © Softing

Remote Support – The Expert Right Next Door

This kind of system is not only capable of simultaneously acquiring and processing data from several thousand repair shop testers. If the repair shop tester has an existing Internet connection, direct communication via the backend can be established (Figure 3). This is very helpful if it becomes necessary for a remote expert to support a mechanic on site. This might be the case with a very specific and thus rarely executed diagnostic measure or for step-by-step support during a complicated repair. If a corresponding system is in place, the mechanic on site just needs to indicate their need of support directly from the repair shop tester. The backend conveys this request to the relevant expert center which in turn establishes a secure 1:1 connection to the repair shop tester. In particular, this makes it possible to dispense with frequently used workarounds which are not compliant with data protection. With the help of appropriate technologies, it is possible to transmit only the image of the application, i.e. of the repair shop

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tester, without giving the expert access to the rest of the PC, as is the case with other solutions.

Digitizing Data in a Closed Loop

Ultimately, it is all about collecting the right data, whether from the end customer, the repair shops, the dealers or the manufacturers themselves, in IT systems and making it available at the right time. The vehicle history (also known as the digital vehicle résumé) is just one example of how the data collected for a defined mechatronic system contributes to control: When did a specific vehicle service take place? Is it due? Was a specific repair successful or not? This information can be transferred to systems with similar characteristics and parameters. The basis for this kind of procedure is always the digital collection of defined data which is available centrally and is constantly kept up to date. The repair shop solution Softing TDX is a holistic digitization platform both to collect data from the field and to roll out data to repair shops and the many repair shop testers worldwide, for example for software updates. In addition, Softing TDX also makes it possible to link the newly digitized data with existing data sources, for example from CRM or Content Management systems, in order to create a digital overview of entire fleets, particular series or individual vehicles that is as up-to-date as possible.

Conclusion

The fast and targeted repair and maintenance of highly complex vehicles are hardly conceivable today without digital support in the tools. Adaptive, digital platforms play a particularly important role in this. They have to flexibly adapt to existing conditions. As a complete solution for aftersales, Softing TDX offers exactly this required flexibility. It adapts precisely to the needs of the relevant customer and their IT infrastructure, and thus makes an optimal contribution to the improvement of processes, products and business models in aftersales. ■

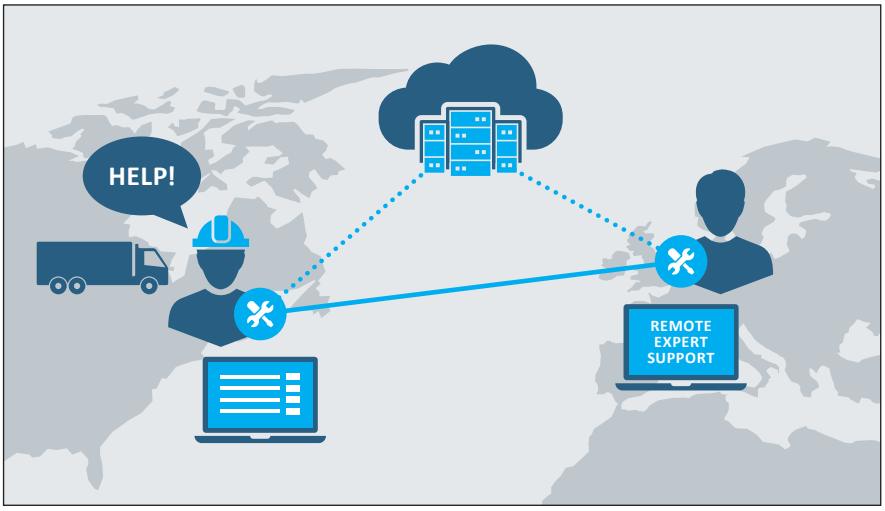

Bild 3: Remote Support as a Service – Unterstützt bei Bedarf den Mechaniker vor Ort © Softing

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MBA & engineer Julian Mayer is a product manager responsible for aftersales diagnostics and Softing TDX at Softing Automotive Electronics. © Softing

Company profile

Softing Automotive Electronics GmbH

The core areas of expertise of the "Automotive Electronics" segment of the Softing Group, diagnostics and testing, provide the industry with key technologies. For 40 years now, leading vehicle manufacturers, system and ECU suppliers have placed their trust in Softing as a technology expert.

Softing is your specialist for the entire life cycle of electronic control units and systems, from engineering through manufacturing to service. Our portfolio comprises hardware and software products, customized solutions as well as consulting and engineering support on site. All our developments are based on standardization which is why Softing is an active member of the most important standardization committees in automotive electronics, such as ASAM and ISO. Our customers therefore benefit immediately from the results of standardization.

Softing is one of the market leaders with over 100,000 installations in the growth market of test and diagnostic systems in vehicle electronics. All over the world, manufacturers of cars, motorcycles and commercial vehicles as well as their suppliers rely on tried and tested tools and solutions from Softing.

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