The end of contact failure.

In the future, product lifecycle management (PLM) will be pulling the strings by giving the "customer-centric" approach of many companies completely new perspectives: the digital twin. Behind this is a development that, according to the Market Research Future Institute, will see the market for digital twin applications rise from the current 5 billion to 15.66 billion US dollars by 2023.

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Developing and building products with a focus on customers right from the start is becoming an increasingly critical factor for more and more companies. Monitoring the function of products 24/7 over their entire period of use, keeping them up to date, and even continually optimizing them are entirely new possibilities – a direction in which nearly all companies in the manufacturing industry are placing high hopes. And the reasons are obvious.

For example, hardly anything causes greater financial loss and damage to image in the manufacturing industry than product recalls. One example from the automotive industry: In the five years before "Dieselgate," manufacturers in Germany alone ordered 6.5 million cars to be brought in for servicing, thus effectively removing them from the streets for a time. The recall rate for new registrations in Germany averaged 63 percent in 2014. In other words: Almost two out of three new cars across the board, whether they came from the Far East, the US, or Europe, had to be taken in at least once in the first year of use. In other industries, the same picture – whether pacemakers, washing machines, laptops, microwaves, baby toys, or self-assembly furniture.

Why is this happening even though today's products are developed and produced with the utmost care, a wealth of experience, and state-of-the-art tools? One reason is that products are always developed based on assumptions and empirical values regarding later use, operating conditions, and loads, which may subsequently prove to be inaccurate. Fast, systematic, complete, and automated feedback from the field on product quality, safety, and use could help by using this type of feedback to proactively drive timely product improvement. However, this is still a dream far off in the future for many engineers: Collecting and evaluating feedback from the field is often a lengthy process and often only makes its way back to engineers after a long delay.

The digital twin can change this. In essence, it is the virtual representation of a specific product that accompanies its physical counterpart for a lifetime. Each representation/data model remains assigned to an individual product – from development and production to subsequent operation – and is fed with its real operating data. "This allows us to monitor the condition, quality, and use of, say, a vehicle or an entire fleet under load, and to determine decisive cause-and-effect relationships by analyzing the data," explains Sascha Leidig, Head of the PLM Global Competence Center at T-Systems.

But not only that. "The digital twin opens up completely new possibilities in product development," predicts the expert on digital twins, Christian Völl, from the consulting company Detecon. According to Völl, structured innovation management which leads to products with significantly higher customer attractiveness is already a critical success factor for surviving in the market.

Successively, OEMs are making the digital twin the "lifelong" companion of their cars.

"The digital twin opens up completely new possibilities in product development."

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WORKSHOP
For individual appointments for the "Digital Twin" workshop offer from Detecon and T-Systems, please send an email to Sascha.Leidig@t-systems.com.

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