

Product Lifecycle Management (PLM)

PLM is not about product development only, but about all data and processes from the idea for a product through development, design and production to the in-service phase. Vehicles, which are now in operation, have been developed partly while CAD models, simulation software and robots were not common in production. When we think ahead, other things will be taken for granted that are still dreams of the future today.



Digitalization in the future

IT systems will play an increasingly important role in the product engineering of tomorrow, as the amount of data will grow strongly due to digitalization.

- Smart products
- Digital Twin
- Individualized products
- Variant diversity
- Predictive maintenance

Information regarding the train route is displayed on the screen

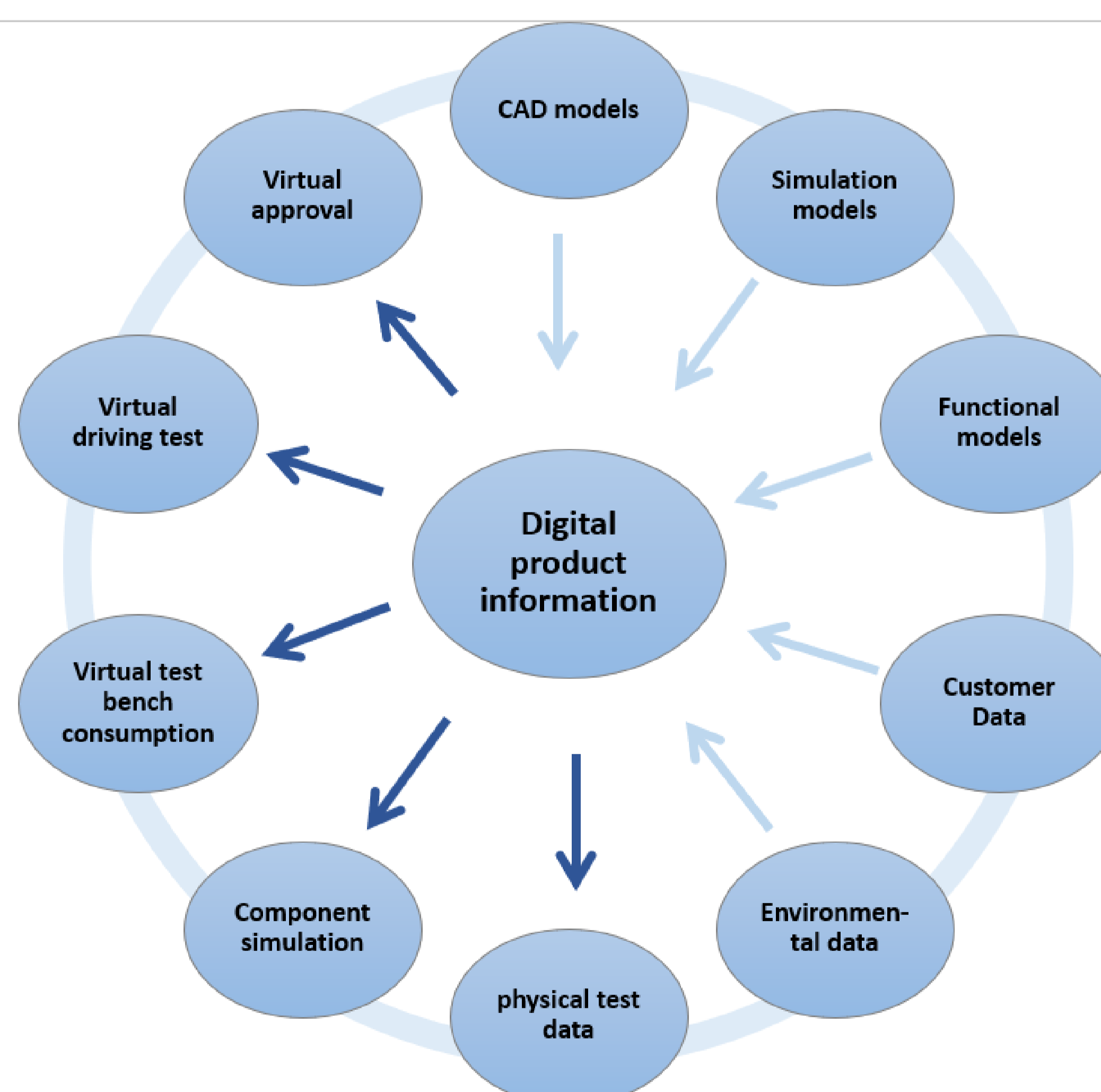
Rail vehicles automatically identify when maintenance work is required

In order to make this possible, a digital product specification is one of many requirements

Configuration management plays a major role. In principle, every vehicle must have a digital twin. In addition, information provided by engineering drawings, such as CAD model and/or parts lists, is no longer sufficient.

Data from virtual product engineering, simulation data and, last but not least, data collected, analyzed and stored by the rail vehicle itself during the "in-service phase" are added.

In addition, these systems must become smarter in order to identify the relevant data, trends, potential sources of error or wearing parts from generated data.



The trend in product engineering is clearly moving in the direction of Individualization. At the same time, more and more components are being standardized for cost reasons. It may seem like a paradox, but it can be realized through ever-increasing digitalization.

Where previously a CAD drawing or a model was sufficient to describe a product, today a combination of mechanical design, electronic design and embedded software has to be considered.

The use of software enables the implementation of various functions.

This involves amounts of data that could no longer be managed without a powerful PLM system.

The use of modern PLM systems with interfaces to CAD, ECAD and configuration management systems is indispensable.

Conclusion: The development towards the digital world forces us to new ways in product engineering. Networking does not only have to take place within the product. The engineering framework is also increasingly characterized by interfaces. IT offers a platform to successfully manage complex systems in an interdisciplinary way using PLM systems.