



**SOFTWARE
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Press information for the Hannover Messe 2018

Smart Factory for Water Meter

The Software Factory realized a digital production for Lorenz GmbH & Co. KG. As a partner assisting a digitalization strategy, the production control and production line system has been adapted to a smart factory for highly customized and cost-efficient radio water meters, which meets the complex requirements of production up to lot size 1 - including IoT functionalities for security, editing process data, traceability, visualizations and Smart Apps.

Over one million water meters are produced every year at Schelklingen by Lorenz GmbH & Co. KG, a specialist for flow measurement. From April 2018, the digitally controlled production process of a new generation of radio-controlled water meters will start in a newly built 1000 m² hall. The goal to design a fully automated production process and to harmonize it with an existing, manually orientated production lines, makes the IT structure very complicated considering the highly individualized and varied production up to a piece size of 1.

Following the analysis by Lorenz, the Software Factory set up an interdisciplinary, optimal combination of digitalization, Shopfloor management, production planning, material flow control as well as equipment automation. Looking at the production systems holistically, including the process chains within the product development, offered the Software Factory the chance to see how Lorenz dealt with digital production, ultimately to make their data world controllable by means of networked technology.

In order for Lorenz to implement this digitalization strategy, the Software Factory defined a step-by-step agile approach to ensure the newly defined manufacturing processes and their link to it were transparent for the employees and management. The adaptation of the factory and production structure as part of the expansion plans of the company especially benefited from this change. Available Industry 4.0 technologies such as security, process-data handling, traceability, visualization, and intelligent apps make it possible to quickly and accurately control operations on the existing and new production line. As a result, mistakes and interference factors are identified early on, process sequences can be compared and effective problem solutions can be detected. These are all necessary steps to be taken to ensure sustainable and uninterrupted processes are optimized.

As a result, PTC's IoT ThingWorx platform was deployed to facilitate the creation of high-quality IoT applications, such as predictive maintenance and

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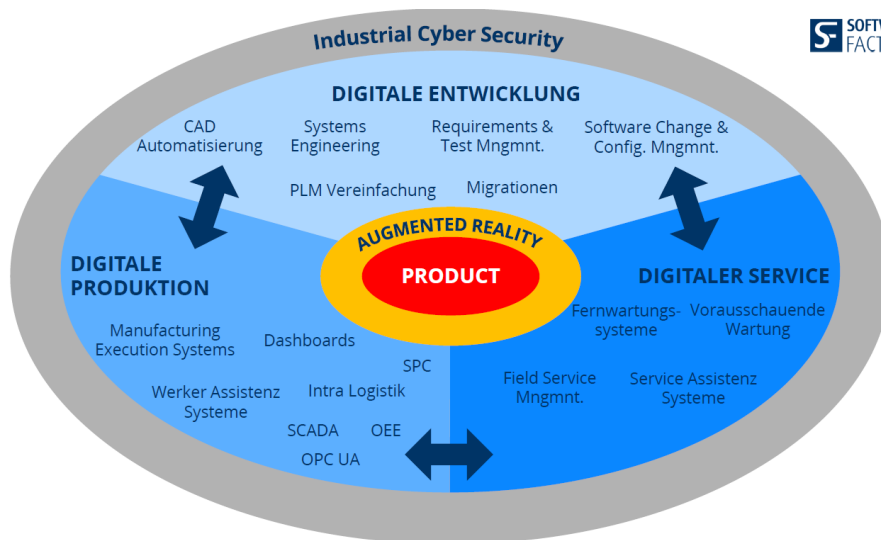


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system monitoring. Rapid application development (RAD) is ensured through model-based development and mashup tools. The Integrity tools, including Modeler and SySim, have been recommended for simulating and using a Digital Twin, which is evident in the production of the water meter microcontroller. ThingWorx Studio and ThingWorx View complete the use of this platform in a time-critical manner, overall executing an agile software project.

Diagram



Optimizing data structures in a company: the Software Factory reorganised the data structures at Lorenz. In the centre lies the radio water meter.



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About the Software Factory

The Software Factory GmbH, located in Garching, has existed since 1992 and was founded as a spin-off of the Institute of Machine Tools and Industrial Management at the Technical University of Munich. The overall focus while developing tailor-made software solutions and products that support customers in the most diverse areas, lies in the area of computer science and mechanical engineering. Currently, our strong global team of 50 includes consulting and software development in Application Lifecycle Management (ALM) and Product Lifecycle Management (PLM), after sales and services as well as the operation of applications, are all anchored in IT Infrastructure. In addition, the company provides services for the migration of inventory data. With expertise for all topics related to Industry 4.0, Software Factory accompanies companies on their path to digital transformation.