

Success Story: HÄFNER Präzisionsteile Oberrot GmbH

SYSTEM MODERNIZATION AS THE FIRST STEP TOWARDS INDUSTRIE 4.0

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OUR COMPETENCIES

- Modeling and use of Digital Twins and asset administration shells
- Software Architecture
- Software solutions for Industrie 4.0
- Data-driven applications
- System Modernization

YOUR BENEFITS

- You will get support from our experts regarding Industrie 4.0
- You will benefit from our experience from successfully completed satellite projects
- You will get assistance in using the Industrie 4.0 middleware Eclipse BaSys

WHAT IT IS ALL ABOUT

The joint project of HÄFNER Präzisionsteile Oberrot GmbH and Fraunhofer IESE builds on the open Industrie 4.0 platform BaSys 4, which IESE uses as a basis for Industrie 4.0 projects. This platform is also used in the BaSys satellite project »BaSys4SupplyQ« with HÄFNER Präzisionsteile Oberrot to realize data exchange with customers in the area of Industrie 4.0. In addition to HÄFNER Präzisionsteile Oberrot, Pickert GmbH and the wbk Institute for Production Technology were also involved in the project.

HÄFNER Präzisionsteile Oberrot GmbH is a producer of high-precision weights in single to small lot productions, partly highly individualized. This means that a wide variety of different geometric forms of weights are manufactured. The weights are regularly recalibrated after the initial calibration, with the interval being determined by the customer.

In addition, HÄFNER Präzisionsteile Oberrot produces precision parts (e.g., for transmissions), where various kinds of data are recorded in a CAQ (Computer-Aided Quality) system during quality assurance. This involves quality data generated during measurements in special measurement laboratories.

Through the collaboration with Fraunhofer IESE, we have successfully completed a very important milestone for our company in the context of our digitalization strategy. The outstanding expertise and excellent project management of Fraunhofer IESE elevated the project to a very professional level.

Martin Häfner
Managing Director
HÄFNER Präzisionsteile
Oberrot GmbH



In both cases, data must be exchanged across company boundaries. The aim of this project is to use Digital Twins at precisely this point as the basis for a service platform for exchanging data with customers. In the form of the asset administration shell, this is one of the central concepts of Industrie 4.0.

THE CHALLENGE

At the beginning of the project, the biggest challenges were dealing with Digital Twins and connecting them to the existing infrastructure. On the one hand, the technology is very new and was still in the active development process at the start of the project. Specifications and tools for the asset administration shell were used in practice with industry partners for the first time in the satellite projects. On the other hand, the concept of Digital Twins is interpreted differently by different parties; i.e., a uniform understanding had to be created first.

THE SUPPORT

The collaboration between Fraunhofer IESE and HÄFNER Präzisionsteile Oberrot started at the beginning of 2020 and is expected to continue for several more years. After the successful completion of the current satellite project »BaSys4SupplyQ«, a follow-up project is being planned for two more years.

The first step was to establish a common understanding of the BaSys world and also to become better acquainted with the AS-IS status of the existing software systems and processes at the company. Based on this, concrete requirements could be elicited, which were implemented in the course of the project. The project partners collaborated closely in every step – from data inventory and data modeling to the architecture documentation to the implementation and integration of the resulting system.

For the exchange of calibration data, the project team developed a platform that is already available as a prototype. System modernization at HÄFNER Präzisionsteile Oberrot will continue to be actively pursued in the coming years.

THE RESULT

In addition to the quality of manufactured components, the customer portal that was developed can also provide supplementary information from production. This represents a differentiating feature compared to other companies on the market. In addition, the results of the project can be used to create an extended service platform for the customers. Work on this will be continued as part of the follow-up project »BaSys4ServiceNet«.

In the new project, the focus will be especially on the changeability of the system. The new project will also investigate to what extent BaSys will enable new digital business models for HÄFNER Präzisionsteile Oberrot.

Name: HÄFNER Präzisionsteile Oberrot GmbH

Industry: Tool and Fixture Construction

Headquarters: Oberrot, Deutschland

Number of employees: 16 (2021)

Project performed: 2020-2021

Contact

Pablo Oliveira Antonino
Department Head Virtual Engineering (VE)
Phone +49 631 6800-2213
pablo.antonino@iese.fraunhofer.de

www.iese.fraunhofer.de

